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ABSTRACT

This pilot project explored the causes of negative teacher attitudes towards vocational education and developed means for helping teachers in the elementary grades to form less biased attitudes. Curricular and instructional plans were developed by 20 teachers for the purpose of furthering vocational understandings among their students. These teachers now realize that blue-collar jobs and other work held in low esteem are essential to our society, and they are better prepared to aid their pupils in making vocational choices. Pre- and post-testing, resource persons, field trips, and self-analysis were techniques employed in developing and evaluating teachers' attitudes towards vocations as a result of a 5-week summer workshop at Miami University, Oxford, Ohio. The positive response of the participants both to their workshop experiences and to the testing of self-developed materials in their classes demonstrated the effectiveness of the program . Line drawings illustrate the text, and numerous resource units are appended. (Author/AG)

ED 068726

TEACHER ATTITUDES TOWARDS VOCATIONAL EDUCATION

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A Research Study in the Development Of Effective Means of Altering the Attitudes of Elementary School Teachers Toward Vocational Education.

Dr. Nicholas P. Georgiady, Director

Miami University
Oxford, Ohio
June, 1972

Supported by funds from the State of Ohio, Department of Education, Division of Vocational Education, under the provisions of the Vocational Education Act, Amendments of 1968.

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APPENDIX A

1. COVER PAGE

Title of Program or Project:	A Research Study in the Development of Effective Means of Altering the Attitudes of Elementary School Teachers Towards Vocational Education.
Initiator: (Principal Investigator)	Dr. Nicholas P. Georgiady (Signature) Professor of Education Miami University Oxford, Ohio 45056 A. C. 513-529-6442
Project Director:	Same as Initiator
Transmitted by:	Mr. Lloyd Goggin (Signature) Vice President, Finance and Business Affairs Miami University Oxford, Ohio 45056 A. C. 513-529-4226
Duration of Activity:	May, 1971 to June 30, 1972.
Purpose of Grant or Contract:	(i) Research and Training Program
Use of Funds:	(1.) Research in Vocational Education
Total State Funds Expended:	$17,598.28
Date Transmitted:	

2. ABSTRACT

Title of Research Program:	A Research Study in the Development of Effective Means of Altering the Attitudes of Elementary School Teachers Towards Vocational Education.
Principal Investigator:	Dr. Nicholas P. Georgiady Professor, Miami University Oxford, Ohio 45056 Telephone A.C. 513-529-6442
Contracting Agency:	Miami University Oxford, Ohio 45056
State Funds Expended:	$17,598.28
Beginning and Ending Dates:	May, 1971 to June 30, 1972

Summary:

A. Purposes and Objectives.

This project explored the causes of negative teacher attitudes towards vocational education and developed means for assisting teachers in forming less biased attitudes. Teachers developed curricular and instructional plans for use in their classes in furthering understandings of pupils regarding all aspects of vocational possibilities.

B. Contribution to Education.

Teachers involved in the study now realize that many jobs held in low regard are essential to our society. They are prepared to assist pupils in making better choices and more appropriate life plans.

C. Procedures.

A pre-test and post-test procedure using tests developed for this purpose was employed in evaluating changes in teachers' attitudes towards vocations as a result of workshop experiences. In the workshop, teachers analyzed their attitudes and the nature of the problem. Programs, curricular materials and instructional strategies concerning vocations were developed at various grade levels for use in their classes. Selected consultants provided their expertise during the workshop program. Visits to a variety of businesses and industries afforded first hand information about a wide range of jobs to be found there.

Materials and plans prepared by teachers were used in their classrooms during the school year following the workshop. Feedback for evaluating was provided by statements of teachers regarding the effectiveness of these plans. Visits to schools employing these plans provided additional information useful in evaluation. The unanimous response of the participants to their experiences in the workshop and to testing the plans made in actual classrooms was fully supportive of the hypotheses and objectives of the project.

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5. PROGRAM EXPENDITURES

1.	Salary and Fees for Regular and Consultant Personnel . . .	$ 11,480.69
2.	Employee Benefits	641.15
3.	Travel for Regular and Consultant Personnel	903.58
4.	Supplies and Materials	958.13
5.	Communications, Postage, Telephone, etc.	90.54
6.	Services Including Duplication and Reproduction, Statistical, Testing, and Other	238.13
7.	Final Report	1,506.00
8.	Equipment Rental	180.00
9.	Other Overhead -- 10% of total	1,599.84
	TOTAL	$ 17,598.28

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Cooperation in making possible on-site visitations is gratefully acknowledged to the firms and individuals indicated below.

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Contributors to the success of this project include, in addition to the Project Staff, a number of persons who offered encouragement and freely and willingly gave their time and energy. These persons participated in a number of ways and their efforts are hereby acknowledged with gratitude:

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Dr. Nicholas P. Georgiady,
Director

RESEARCH STUDY IN THE DEVELOPMENT OF EFFECTIVE MEANS OF ALTERING THE ATTITUDES OF ELEMENTARY SCHOOL TEACHERS TOWARDS VOCATIONAL EDUCATION

I. *THE PROBLEM*

At present, instructional programs deal little, if at all, with the development of wholesome attitudes towards work and vocational education. In addition, as guidance programs are examined, it can readily be seen that what little is done in terms of vocational counseling is frequently done hurriedly and briefly, just prior to the planning of a high school program for the individual. These conditions persist despite the fact that educators are becoming increasingly aware that knowledge about vocations and attitudes towards work should be developed much earlier, in the elementary grades, if sound choices and decisions are to be later made by the individual.

Statistics published by the President's Committee on Youth,[1] the N.E.A.,[2] and the Ohio Department of Education[3] indicate that about two-thirds of all students entering school in the first grade eventually do not go on to college work. These students either drop out of school some time prior to reaching the end of the twelfth grade or they may graduate and seek employment. In either case, they are seldom prepared to enter the world of work. The critical nature of the problem becomes evident with the realization that a clear majority of students, those not going on to higher education, are involved in this predicament. With a still higher percentage of students from inner city schools[4] not finding their way into college programs, the need for helping these students is even more clearly pronounced.

The value systems held by many people in this country accord a low status to certain non-professional vocations. There is a common tendency on the part of many adults to downgrade "blue collar" vocations in favor of "white collar" vocations. Children are frequently discouraged from developing interests in those occupations which call for manual and mechanical skills as they are deemed to be less worthy and less socially acceptable.

Certainly a factor in this condition is the frequent lack of any significant and constructive effort on the part of the school to develop full understanding by students of the valuable contributions to life today made by many lowly regarded vocations. The matter of vocational choices is frequently left to chance, or at best, accomplished on the basis of extremely limited or biased information. As a result, students may never realize the opportunity to explore an innate interest in a vocation which could be ideally suited to them and ultimately, it becomes painfully evident that their choices, superficially arrived at, are inappropriate both for the individual and the nation.

A unique though related concern is with the development of what is commonly referred to as the "welfare syndrome." This appears to be found most frequently with inner city poor, many of whom have come to regard living on welfare payments as a legitimate and justifiable way of life, preferable to seeking gainful employment or as a recourse to the

[1] *The Challenge of Jobless Youth*, The President's Committee on Youth, Washington, D. C.

[2] *School Dropouts*, Research Summary 1967-S1, the Research Division, National Education Association, 1967.

[3] *A Study of Ohio High School Dropouts*, Ohio State Department of Education, Columbus, Ohio, 1963.

[4] *The Challenge of Jobless Youth*, op. cit.

inability to find gainful employment. There is a lack of realization that work is psychologically positive and desirable to the individual.

Although the problem is quite general, it is most imperative that present elementary school teachers be prepared through retraining to provide more assistance to their students in the matter of better knowledge of many vocations and a more constructive attitude towards work. An essential aspect of such training should be centered on the examination and evaluation of the attitudes held by teachers themselves towards various vocations. Such attitudes inevitably are reflected in teacher behavior in the classroom and in their instructional relationship to children in their classes. Subtly or overtly, teachers can and do exercise considerable influence on the attitudes of their students. Where teachers hold in low regard certain vocational lines, students are often likely to perceive this and to be themselves influenced by such attitudes. Part of the inadequacy of teachers stems from a lack of curricular planning for early educational experiences along these lines. Even those teachers who are aware of this situation are often unable to behave otherwise since they lack the knowledge and direction necessary to overcome this weakness. Development of appropriate curricular strategies and materials to assist them is an important need in this regard as these are presently lacking in most schools.

II. *HISTORICAL DEVELOPMENT OF VOCATIONAL EDUCATION.*

There are many concepts of what vocational education is. "Some individuals feel vocational education is the education or training of workers. This implies that any type of education or training in which a worker participates is vocational. Others feel that vocational education is education for manual work, which wrongly suggests that it doesn't involve any mental activity. Another concept is that of education for production, in which vocational education is contrasted with liberal education. This suggests that vocational education is designed to make a person an efficient producer and liberal education is designed to make a person an efficient consumer."[5] These are all narrow concepts because vocational education as mere training for a job is neither acceptable nor appropriate.

There are also many definitions of vocational education. A rather simple one is given by Franklin J. Keller. He writes:

> Vocational education is much more than knowing how to work; it is an education with a purpose, for a purpose. Vocational education is learning how to work in a milieu, among people, with people, for people. It is learning how to live with other workers, at home, at play, and in the community. It is learning how to live efficiently and morally.[6]

This definition points out an important fact — that in contrast to vocational training, vocational education does more than simply train a person to perform a certain task. Although the development of marketable skills is one of the prime objectives of vocational education, it also accomplishes the "general" objectives of education such as "developing respect for the worth of every individual, stimulating a desire for continuous learning, promoting good citizenship, acquisition of important information, developing adaptability to change, developing effective methods of thinking, etc."[7] as well as, or in some instances, better than, those areas which are considered to be general or liberal education.

Vocational education has existed for some time. Some of the stigma attached to it as being second-class education comes from the earlier forms of vocational education. In ancient times, for example, a person was born to a life of leisure or a life of work and the kind of education a person received was based on this. One was education for thinking — the other for doing. From this came the early criterion for evaluating education — the more purely mental the activity, the more valuable. Even during the early days of this century, if a boy wanted to learn a trade, he had to commit a crime since trade training was given to delinquents. Another example of vocational training was given in the "ragged schools" of England. The children of the destitute were given trade training in the shops of craftsmen. Trade training, too, has been used for mental and physical deviates as occupational therapy and these programs have been valuable for those people involved in them. However, over the years, they leave people to believe that vocational education is a type of second-class education, and that anyone who doesn't do well in the academic areas of education should be put in some vocational area. From this came the idea of vocational education as a "dumping grounds" for less able students.

Rather than consider vocational education as something distinctly different from general or liberal education, the two should be complementary. "The fact is that education, is a unified process, developing in the student the qualities of mind and personality required of him both for making a living and for building a life."[8]

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[5] Roy W. Roberts, *Vocational and Practical Arts Education*, (New York: Harper and Row, 1953), pp. 7-9.

[6] Franklin J. Keller, *Principles of Vocational Education*, (Boston: D. C. Heath and Company, 1948), p. 35.

[7] Part of a list of the general objectives of education as compiled by students in EDC 513, Miami University, Oxford, Ohio; May 1969.

[8] From a report of the Educational Policies Commission, 1947.

A person needs both generalized and specialized education. F. J. Keller states that "education for free youth must be education for *all* youth, with a good deal of common content but with a considerable degree of specialization to provide for differences in capacity and interest."[9] Vocational education is a part of that specialized education.

The Committee on National Aid to Vocational Education in the early 1900's saw a need for vocational education below the college level for economic reasons as well as to democratize education. Economically it was needed to provide persons capable of producing and was also necessary for the person to be able to contribute to the welfare of society. At this time the educational system was largely planned for the few who were preparing for college. Of all those who entered school, 70 per cent left school by the time they were 15. Thus, there was a pressing need to give the majority some education to prepare them for their life work.

"Since 1918, at least seven pronouncements by major committees and commissions of objectives for secondary education have included specific reference to the development of vocational competence."[10] Thus, education leaders have continued to recognize the need for vocational education in schools for some time now.

One problem which has been frequently cited is the inadequacy of the curriculum in many schools. "Innumerable early school-leavers give testimony to the ineffectualness of providing education to the many designed for the few."[11] Vocational education encourages these people to stay in school and equips them with salable skills to enter the world of work upon graduation from high school. Youth can see some relevance to this type of curriculum.

Vocational education also has important applications in education or re-educating adults, to provide "new training when old occupations become obsolete, to help them climb the occupational ladder, and to right previous areas of premature vocational selection."[12]

Economically speaking, the cost to a community in unemployment, loss of goods and services, increases in welfare services, etc. is much greater than the cost of providing adequate vocational education programs.

In conclusion, both general and specialized education are needed in the schools to provide a balanced program of education that is designed to meet the needs of all youth. Vocational education deserves the same status as general or liberal education. It's as simple as saying that both are necessary!

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[9] Franklin J. Keller, *The Double-Purpose High School*, (New York: Harper and Row, 1953), p. 3.

[10] Jerome Moss, "Universal Vocational Education: A Vital Element of Public Education," *Educational Forum*, November, 1963.

[11] Op. Cit., Moss.

[12] Ibid.

III. *OBJECTIVES OF THE STUDY*

In developing and carrying out a pilot research project, several hypotheses were tested to determine their appropriateness to dealing with the problem.

1. Teachers consciously or unconsciously exhibit bias towards certain vocations, particularly those involving so-called "blue collar" jobs.
2. This bias stems largely from a lack of knowledge about many vocations and their importance to living as we know it today. Recognizing this condition through examination of their attitudes and identifying the areas of weakness will assist them in overcoming these.
3. Given a desire to modify their behavior towards pupils and to assist pupils in acquiring a broader, fuller understanding of various vocations, teachers are often prevented from doing so by a lack of knowledge concerning curricular and instructional strategies needed and by lack of familiarity with instructional materials useful for the task. Providing them with these important instructional insights and tools will permit and encourage them to proceed with the task.
4. A pilot project planned along these lines, proven successful, will provide a model for other groups and may also suggest general procedures for use in other communities in altering teacher attitudes towards vocations.

Objectives

The following are among the objectives which this project sought to attain. These are predicated upon the above named hypotheses.

1. To assist teachers in developing an awareness of the problem and of its implications for students and society.
2. To assist teachers in examining their own attitudes towards vocational fields and to permit them to identify bias and inadequacies where they exist.
3. To develop curricula for grades 1-8 which will fit existing school programs and which will provide for progressive development in students of knowledge about vocations and of constructive attitudes towards many different kinds of work.
4. To identify available instructional materials useful in helping students learn about many vocations and in building concepts, attitudes and skills useful in making future vocational decisions.
5. To produce additional needed instructional materials including resource units at various grade levels, curriculum outlines, sample teaching units, audio-visual materials, etc.
6. To make extensive use of community resources, both human and material, in accomplishing the above.
7. To field test the materials and curricula produced in the classrooms of the participating communities.
8. To utilize the experiences gained in the project in improving teaching practices in other schools.
9. To utilize the experiences of field testing of materials in further improving them.
10. To utilize the experiences gained in the project in improving teacher training programs in the University and in other universities and colleges in the state.

IV. *DESCRIPTION OF THE PROGRAM*

A five week workshop was conducted in the summer of 1971 on the campus of Miami University. Twenty teachers, administrators, and counselors were drawn largely from the staffs of schools in the southwestern part of Ohio, and from other communities in the state. The resources of the University, the cooperating schools, and the business and industrial sectors of each community, both human and material, were drawn upon to carry on a practical and relevant program of work designed to assist participants and their colleagues in more effective preparation of children for ultimate decisions and roles regarding vocations.

In the workshop, a practicum approach was utilized with every effort being made to relate the activities to the problems and tasks confronting the participants in their respective school situations. Available instructional materials designed to assist students in learning about many vocations and in building concepts, attitudes and skills useful in making ultimate vocational choices were screened and selected on the basis of the project's objectives. New and further needed instructional materials were developed. These took the form of resource units;[13] unipacs, teaching units, A-V materials, curriculum outlines and teaching strategies. The grade levels covered were grades 1-8 as these were considered important formative years in the development of desirable attitudes and knowledge concerning the world of work. The developmental nature and interests of children at each grade level as well as the nature of each community were important factors in the work done.

Recognized educational experts[14] from the fields of curriculum development, guidance, elementary education, industrial education, and from business and industrial educational service programs served as consultants and resource persons during the course of the workshop. They offered their expertise and knowledge to the participants and actively assisted in the conduct of the program of the workshop.

Participants in the workshop were administered evaluation instruments[15] to assess attitudes towards vocations. This was done on a pre-test basis at the beginning of the workshop. Five weeks later, following the completion of the workshop, a post-test was conducted on the same basis to identify changes occurring in the attitudes of teachers. Data were analyzed and interpreted and conclusions were drawn and utilized in making recommendations.

Participants returned to their respective communities and utilized ideas and materials from the workshop in their schools. The Director maintained communication with the participants during the post-workshop period. The final products are incorporated in the report and are being disseminated throughout the state of Ohio.

Outline of the Program

First Week

Administration of the pre-test instruments to the workshop participants to secure baseline data.

Orientation to the project with an analysis and discussion of the purposes of the project.

Definition of the problem and analysis of its various aspects. Identification of the causative factors, i.e., societal, psychosociological, economic, etc. contributing to the problem.

Second Week

Review of the numerous and varied aspects of the elementary school curriculum, grades 1-8, with identification of the logical points of en-

[13] The resource unit has been defined by various writers (Krug, Alberty, Saylor) as a collection of activities and instructional materials centering on a defined instructional topic. Curriculum experts have described the resource unit as the single most valuable planning tool for teachers and pupils.

[14] See listing of consultants to the project.

[15] See Appendix for instruments developed and used.

try for instructional activities dealing with developing vocational attitudes of children.

Development of broad objectives for the above. Further development of specific objectives expressed in behavioral terms.

Third Week

Begin development of resource units and unipacs needed by teachers to attain the above goals. Begin, also, development of teaching units by participants appropriate to the grade level and teaching situation of each.

Fourth Week

Continue development of resource units, unipacs, and teaching units. Examination of instructional materials useful in above units. These were available through educational sources and through business and industry.

Visitations to nearby businesses and industries to observe the various vocational situations found there.

Fifth Week

Complete development of resource units, teaching units, curricular plans and teaching strategies.

Finalize specific plans for each participant to begin implementation of his program in the fall.

Administer post-test instruments to participants. Results compared to pre-test performances and analyzed.

Evaluation

The effectiveness of the program of the project in accomplishing its expressed objectives was determined in several ways.

1. Data concerning changes in teacher's attitudes towards vocations were gathered through the administration of objective instruments of evaluation.

   Since there is presently not available a test designed to specifically assess teacher attitudes towards vocations per se, an instrument was developed to use in this regard. This was an objective test of fifty items which explores teacher attitudes regarding vocations. Items establish the general nature of attitudes towards certain vocations. It will also be noted that each concept was the subject of at least three separate, differently worded and scattered test questions in order to assure consistency in assessing the teacher's attitude.

   The testing instrument developed in this fashion was standardized with non-participating groups of teachers prior to its use in the project. It was then administered in a pre-test situation at the beginning of the workshop and in a post-test situation at the termination of the workshop. Differences in scores were noted and analyzed and findings reported.

2. Participants were queried regarding their knowledge of varied kinds of jobs. Frequency counts of the different kinds of jobs which were known to each individual were made. This was done on a pre-test basis prior to the beginning of the workshop and again at the termination of the workshop. Differences in the counts for each individual were noted, results were statistically analyzed and findings reported.
3. In addition to the objective data gathered as mentioned above, subjective information concerning the attitudes of teachers was recorded on the basis of observation and interview during the course of the project. These notes have been studied for indications of possible changes in attitudes and findings interpreted and reported.

V. *RESULTS*

Results of the workshop experience for the participants have been divided into two sections. One deals with the objective data gathered from tests and other evaluative measures taken and the interpretations of these findings. The second deals with the subjective evidence produced based on reactions of the participants at the end of the workshop as well as the observable changes in their classroom practices when they returned to their respective jobs.

Subjective Evidence

An evaluative session was held at the termination of the formal workshop program. Participants were encouraged to freely discuss their experiences in the program and to describe the kinds of changes they were able to see in themselves with regard to attitudes and intended or planned behavior. Response of the participants was highly positive and supportive of the workshop program. There was unanimous feeling that it had been a beneficial experience from several standpoints.

1. There was an increased awareness of the scope and nature of the problem of wholesome attitudes towards work and vocational education. The overriding implications for our society of the existence of bias towards certain vocations were recognized and accepted by participants.
2. The crucial role of elementary education in eliminating this bias in young children was seen as central to dealing with the problem.
3. The lack of adequate background on the part of elementary school teachers for dealing with the problem in the classrooms was recognized and accepted. A positive attitude on the part of participants permitted them to freely evaluate their own approaches to teaching about vocations and to seek better means for doing so in their classrooms.
4. Review of the curricula of the elementary school led to the identification of appropriate points of entry for units on vocations in many classroom and grade level situations.
5. The need for appropriate curricular and instructional materials for use in classrooms was recognized by participants. Curricular outlines were modified to accommodate the change and units of instruction were developed for their own use by participants. Sample units are contained in the Appendix.
6. The identification of community resources useful in this approach was recognized as important by the participants. This included resource people from business and industry, local government and other agencies. Evidence of this was clearly demonstrated in several classes visited by the project director during the following school year.

Comments of Participants at the Termination of the Workshop

In a session devoted to an evaluation of the workshop experience, participants discussed their reactions and evaluations of the program. Participants were asked to discuss their evaluations in terms of the stated objectives of the workshop. Their comments were recorded on tape and transcribed in the series of statements below.

"Well, I think the seed has been planted within my own line of work and I *will* try to bring more vocation into my teaching units. I think that my big problem is going to be finding more materials like films and filmstrips and books that will go along with my unit. But I feel I can do a lot by using community resources and people within the community to help bring before the students their vocations and the changes that have come about in their

vocations so that the children will be made more aware of the many, many jobs available within the community."

"As a beginning teacher, I think that this workshop has helped me, maybe prevented me from making some mistakes that I would have made had I not had this experience. In my area, there is a job shortage, with plants closing and workers being laid off. I think that my students will be affected by this since they are going to be old enough to know what's happening to their families. I think that through this workshop, I have been made more aware of how to help them face these situations, and have helped to outline for them various possibilities for other vocations. Maybe if they are concerned about their families, we could talk about it and give them some guidance too. I would just say that over-all, the workshop has created enthusiasm and a deeper understanding of the world of work."

"With every field trip that we took, I think I felt a little bit more ignorant when I saw the employees working with their machines and now I do have a greater respect for this kind of employee."

"As a student of this workshop, I feel that it's been my experience to find an awareness toward vocational education both from an industry standpoint and from the classroom teacher's. This awareness has not only been towards vocations, but to the materials that are available to be used in the classroom. Upon completing this workshop, I feel that I can take some of these ideas back to my students and apply them in the coming year. And for future workshops, I feel that this will be most valuable to the classroom teacher because I feel that it's the responsibility of the classroom teacher to make the child aware of the various vocations available to him and to help each child in preparation for later on in life."

"I feel that the greatest thing that I have gained from this workshop is that I now realize how many, many types of vocations there are from which a child may choose and if he is exposed to even a small number of them, he may gain in awareness and realize that he does have a very big choice to make."

"I agree with what Barbara has just said, and I would like to add to this that I think the biggest thing that I gained from this course is the awareness of all the different vocations and occupations. During the last five weeks, I have been thinking about some of my friends who are very anti-vocational education. I think that it would do them a world of good to sit here and realize that it doesn't take a college education or wearing a white shirt and tie to be a success in this world."

"Throughout this workshop, I particularly enjoyed talking with the personnel representatives from each of the industries. They knew what they wanted from the teachers and the schools and they could tell us what they want from the students seeking employment. I think this would be useful in our classrooms because now we know that every part of our curriculum has to be geared toward vocational education. I think working along the lines with these curriculum materials, I now have a head start on many teachers because I know this is coming into practice and it will be here before too long. I'll be at least two years ahead of them, if not more, and I think more teachers should get involved with this program."

"I feel that this workshop has been especially helpful to me in increasing my knowledge about the world of work. I was surprised at the beginning to learn how limited I was in my thinking about various occupations and professions. I think having attended this workshop I will be able to help children in my class be more selective in the kind of work best suited for their varying abilities. I do feel that this kind of workshop should be continued. I think it's one of the things that has been omitted in many of our teacher preparatory courses, and I think it's something we should do more of in the future."

"This workshop has been very beneficial to me in some very particular ways. I've had several years of working with high school and junior high students in this area. However, in

working with ten year olds, it's considerably different. It has been very revealing to me how many different resources are available; materials whereby I can use to introduce to these youngsters and I feel that vocational guidance is a teacher responsibility and should be and can be given to the elementary child. The follow-up planned and I'm sure that it can be worked out to even greater extents in the future, will be very beneficial to each of us, and to me personally. I've gotten a great deal out of it, even though I've been introduced to industry before. It's thrown a great deal of new light and I would be very anxious to be in a group next summer or at some later date to do a follow-up evaluation after we have had a chance to put some of these things into practice."

"I feel that I have become far more knowledgeable about vocations. I was very, very ignorant before taking this workshop and I'll be the first to admit it. I will try to correlate vocational training into my regular academic guidance at school. I will also try to be a good counselor in the vocational field and I hope to become a counselor in the vocational field."

"Although my current position is vocationally oriented, I feel that by participating in the Project S.T.A.V.E. a lot of my thinking has been reinforced. I'm glad to see the thrust being made in elementary education about vocational education. As far as future plans are concerned, I would strongly hope that we would talk in terms of career education rather than vocational and/or occupational education. Also, I think in addition to the very fine university consultants that we have had, both locally and from out of state, more rap sessions with local businessmen, in addition to the field trips, would be very beneficial."

"As an administrator in the public school system, I feel this workshop has made me more aware of the increasing need for teachers to become more aware of vocations. I feel as though it is going to be my responsibility to help those teachers in any way, whether it be with resource material, or what it might be, to help implement this type of instruction in our curriculum. I feel that it can be done. Before working with the resource unit project that I prepared, I did not know the importance of this type of work at the elementary level. It is through this type of active participation I hope that I can also encourage our elementary staff where I work."

"I've always had a strong feeling that we should have more vocational education on the elementary level. This perhaps is my purpose for having taken the workshop in the first place. I feel that this has been reinforced for me to a great degree. I've gotten a stronger and deeper feeling for the dignity of work for the person who is doing work other than the college oriented individual. I feel that I have also gotten a better understanding of industry and perhaps their problems and what they expect of us to help them."

"I think this workshop has given us an opportunity to correlate our ideas this summer and to start planning more vocational orientation in our everyday teaching. I think that by going out into the community to talk with the different businessmen, seeing what is available for us to use in our everyday teaching, that we will be better able to incorporate teaching for vocations in our entire curriculum."

"During the time when we were in class, and we worked with the personality improvement records, I think this helped each of us, not only in our classrooms, but it helped us to build up our own personalities. I know I now feel I can go back into my classroom or into my school building and work with other teachers who are so against this program and who refuse to change. I feel now I have the ability to go back and talk with them at an adult level, where before I might have held back and been a little shy working with older teachers and with teachers who just refuse to change their ways. I feel that now I can do it more effectively. I think we brought out the personalities in the group too. I think we're now all leaders where we might have held back a little bit before."

"I would like to add to that, along with the personality, the attitude aspect. And also as a follow-up on some of this with this particular group, it was suggested by several people that perhaps we could have another meeting sometime about Christmas or mid-year, whenever we could get together and perhaps have a dinner meeting; meet in a central place, and again go over some of these things. Now, just rather than meeting in a home and making so much work for somebody, I'll throw this in; we can get a room, a conference room in a motel or some place like that for a little bit. Those like Cindy or some of those very far away, might find it more difficult to get away, but many of us are here and could meet without too much trouble."

"Since I am going to change grade levels from kindergarten to fourth grade, I especially appreciated the opportunity to be able to write the unit, and to be able to incorporate this new angle of vocational study into it."

"I have always felt strongly about vocational education; I now have a better outlook on vocational education and I appreciate it more. I do feel that more administrators really should have access to a workshop like this and I would suggest that maybe in the next workshop that more counselors, principals, and any persons working in administrative offices should be here."

"One thing that I forgot to mention before is that I think what I was surprised at and that we should remember is how eager people in industry are to help us with our needs in vocational training. Everywhere we went, everyone was most enthusiastic, most eager to help and they really bent over backwards to do all they could to answer our questions and to ease our minds as to some of the problems and questions that we had. I think that if we would take this back to our community, just the awareness that businessmen and the industrial people in town are eager to help. If we could remember this and go to these people and reach out to them, that they will be more than happy to reach out to us in return, and in this way our vocational endeavors will be increased and enhanced."

Field Observations During the School Year

In the months of the regular school year following the summer workshop, the project director visited as many of the classrooms of the teacher participants as was possible. His observations follow.

1. Bulletin board displays were frequently noted which dealt with vocations. These ranged from the kindergarten through the junior high school levels. A large number of the displays were pupil-motivated and created with art work and description developed by students. Themes for displays ranged from "Occupations of Early American Pioneers", to "Father's Occupations", and "When I Grow Up". In addition, use was made of commercially produced illustrative materials on vocations. Some classrooms had arranged collections of books on vocations that were written at reading levels appropriate to the grade levels of children in the classroom.
2. A number of field trips were planned, and carried out. Sites visited included department stores, bakeries, banks, steel mills, plastic factories, hospitals, incinerators, telephone companies, farms, airports, museums, dairies, construction projects, road repair projects, restaurants, courts of law, fire departments, police stations, and others. These provided students and teachers with first hand information about various jobs. The opportunities to talk to people on the jobs afforded further insights for the visitors. In one town of one thousand people, there are two manufacturers who produce tennis rackets and popcorn which are shipped to all parts of the country. Prior to this year, they had never been visited by any classes of students. The teacher who had been in-

volved in this project workshop was the first to take a class through the plants. This was one of several examples where community resources were discovered and used in planning instructional programs about vocations.

3. Use of resource people in the classroom was also increased. Again, after surveying the community, several schools found people whose jobs and hobbies were of interest to students. These adults were invited to share their experiences and describe their work to students. Resource persons included janitors, nurses, secretaries, policemen, firemen, pilots, electricians, plumbers, carpenters, chemists, stone masons, architects, auto mechanics, bus drivers, truck drivers, weather forecasters, landscapers, and others. Students both enjoyed and seemed to benefit from contact with people whose work was of interest to them.
4. A general feeling of being willing to try out new ideas in their classrooms was observed in many of the participants. Some indicated that the ideas were gained in the workshop. Others indicated that they simply developed their ideas through planning either by themselves or with students. One notable example of highly creative pupil-teacher planning was illustrated by a sixth grade teacher and a class of thirty-one students who began with the idea of a large piece of land with nothing on it. Then, step by step, the class planned clearing the land of trees, making lumber from these, building houses, schools, stores, hospitals, utilities, etc., everything necessary for a town. In each step, they analyzed the work necessary for each job. The teacher admitted that the experience was one which left her "worn out but very happy" and her students came out of it with a much better understanding of the work necessary to make a town possible.

Objective Evidence

Two sets of data were derived, each of which showed changes in responses by participants to questions during the five week workshop program. The tests used were (1) a listing of all the different kinds of jobs known to each participant and (2) responses to the test items on the Test of Teacher Attitudes Towards Vocational Education. Each test was administered in a pre-test at the beginning of the summer five week workshop. Tests were again administered at the termination of the workshop period. Changes in scores were computed for each participant on each of the two tests. Changes on the two tests were then compared.

Correlation between two sets of test scores is a measure of the tendency for the two sets of data to correspond in relative magnitude. The coefficient of correlation derived for the twenty (20) pairs of results considered in this analysis was calculated to be (r .36401) or more appropriately (r .36). This may be interpreted to indicate that there is some relationship between increased ability to identify occupations as measured by test (1) and relative change in attitude as measured by test (2). That is to say, there is some evidence to indicate that respondents who showed above average growth in ability to identify occupations also tended to show above average change in attitudes towards vocational education and work.

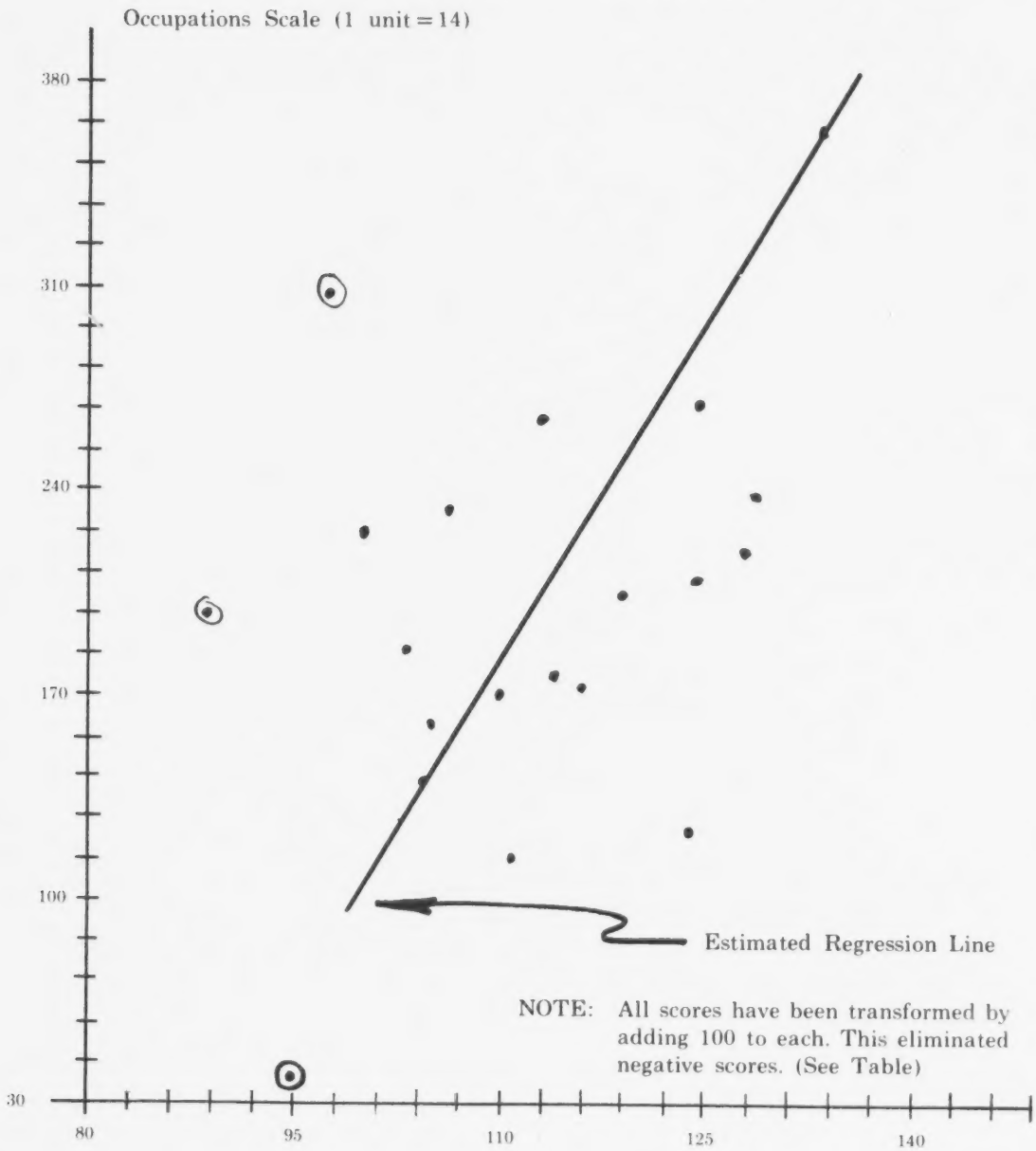
Examination of the data (see table and scattergram) suggested that the unusual deviations of three of the respondents could be attributed to random effects unrelated to treatment, i.e., absence or emotional stress of a personal nature and as a result, the coefficient of correlation would indicate a much stronger relationship. The coefficient of correlation, computed in light of the above, would be (r .5).

DATA TABLE
PRE AND POST TEST
DIFFERENCE SCORES

RESPONDENT NUMBER	ACTUAL SCORE OCCUPATION	ATTITUDE	TRANSFORMED SCORE X'	Y'
1	103	19	203	119
2	207	-3	*307	97
3	155	24	255	124
4	98	-12	*198	88
5	40	5	140	105
6	109	24	209	124
7	163	13	263	113
8	22	23	122	123
9	73	16	173	116
10	70	10	170	110
11	-63	-5	* 37	95
12	139	29	239	129
13	14	11	114	111
14	265	35	365	135
15	85	3	185	103
16	134	6	234	106
17	61	5	161	105
18	105	28	205	128
19	126	3	226	103
20	78	14	178	114

X' 199.2 s.d.X' 71.3 Y' 112.4 s.d.Y' 12.4

SCATTERGRAM OF MEASURES



Pearson Product - Moment, Coefficient of Corr. r = .36401

Aptitude Scale
(1 unit = 3)

VI. CONCLUSIONS AND RECOMMENDATIONS

For many years, vocational education has struggled to free itself of the image of being a "step-child" of education, of being relegated to a secondary or lesser rather than a primary role in education. Recent recognition as an important part of education has finally developed with many states, including Ohio, appropriating increased funds for vocational education in recognition of its need to our society.

The experiences of workshop participants in this project have served to illustrate this trend rather graphically. Comments by participants following their studies and discussions in the project have provided evidence of considerable change on their part with respect to attitudes towards vocational education. What had been largely negative attitudes towards vocational education became positive and supportive. The importance of dealing with the problem as early as the elementary school years became clearly evident to them and was wholeheartedly accepted as an important aspect of their roles as teachers. It was significant to note the change in the climate of the workshop project in this regard. Without this professional attitude of open-mindedness on the part of participants, the project could not succeed in attaining the expressed objectives set forth.

More specifically, the results of the project can be summarized in the following statements of accomplishment.

Conclusions

1. Study of the problem led to defining for vocational education a more important role commensurate with its potential contributions to individual development and self-fulfillment and to our society of a population better educated to serve in the continued improvement of life today. There was an expanded awareness of the many different kinds of job roles that were necessary to well-being as a community and nation. There was also an increased awareness of communicating to students, the many opportunities that existed in the job field for their self-fulfillment. The oftentimes conflicting goals of the individual on one hand and the expectations of the society on the other were resolved in this recognition of the common good to both where a workable and relevant program of improving attitudes towards vocational education was carried out.
2. Early in the workshop discussions, teachers recognized and accepted their shortcomings with reference to knowledge about many kinds of jobs and their bias towards some of these. Negative attitudes held by many adults towards certain jobs, largely of a menial or manual type were brought to light and analyzed. Through discussion among themselves and with consultants participating in the program, these inadequacies were accepted and steps taken to correct them with accurate, up-to-date information about the true importance of jobs often held in low esteem. The free and open climate established in these meetings served to facilitate a receptiveness towards identification of problem areas and to accepting the responsibility for planning corrective measures.
3. Analysis and study of the elementary school curriculum made possible the identification of logical points of entry for classroom studies about vocations. Beginning with the simple kinds of activities carried on in the kindergarten and proceeding in systematic fashion through the grades to the more sophisticated and complex activities of high school level ideas for augmenting

the existing curriculum ladder were developed and fitted into place. In all instances, the developmental characteristics of the children at each grade level were a major criterion for decisions regarding the activities selected. Appropriateness for the children involved was never overlooked and where there was any question of the appropriateness of a curricular provision, it was refined to fit the pattern and readiness of the children involved.

4. A veritable host of materials for instructional purposes was assembled for examination, selection, and use by the participants. These were gathered from numerous schools where they had been used, from commercial producers of instructional materials and equipment and from goverment sources at several levels. All of these were made available to workshop participants and were drawn upon in the development of their individual plans for their respective school situations.
5. Every community, regardless of its relative wealth or poverty, possesses a variety of resources that are useful to the classroom teacher. Some of these are material in nature, including publications, museums, galleries of art, zoos, industries, historical societies, etc. Others are human in nature including citizens whose jobs are of interest to students studying in those areas and citizens with hobbies related to their studies. Many of these persons are receptive to invitation to share their knowledge, experience, and collections with classes and respond affirmatively when approached to do so. Participants recognized this potential wealth to be tapped in every community and time was devoted to the procedures to be conducted in planning and carrying on a community resources study. This information can then be classified, recorded, and made available to schools by means of a community resources file. The importance of keeping this up-dated and current was stressed. Also emphasized was the desirability of involving parents from the community in carrying on such a study. While the actual cost of such a community resources file is not great, there is unlimited value that this can bring to the school in terms of enrichment of studies and learning activities.
6. The availability of a great variety of instructional resources of every kind is not, in and of itself, enough to assure improved learning in the classroom. These are simply tools for use by teachers and students and their effectiveness must depend, like all tools, upon the uses to which they are put. Therefore, the next step was the planning of the means for utilizing these in classrooms for maximum learning impact. This was accomplished through planning curricular and instructional strategies by each participant for his or her classroom situation. Curriculum outlines were refined to include attention to these identified resources. Specific resource units, unipacs and teaching units were developed by individual teachers and by teachers working together in a team approach. In every instance, the goal was to focus on more attention to increasing the awareness of students regarding the great number of vocations that exist, learning about the nature of these vocations and identifying those that interested them for further study. Units were developed for use from the kindergarten level through the junior high school. While over forty units were developed in the workshop period, only a sample of these are included in this report as illustrative of their nature. These are found in the Appendix to this report.

7. In his visits to classrooms of the participant teachers after the termination of the workshop, the Director observed the actual use of ideas discussed and plans made during the workshop period. In many instances, there was dramatic evidence of sound activity on the part of teacher and students concerning studies of vocations. This was observed in actual instructional activities carried on in his presence, in bulletin board displays, in collections of books and other materials dealing with vocations, in reviewing evaluations of field trips taken by classes having visited workers on various jobs and even in the publication of a newspaper on the experiences of a group of elementary students concerning their interests and studies of different jobs. A copy of this informal but commendable newspaper is also included in the Appendix.

   During the school year, discussions with teachers who had participated in the workshop revealed that many of them found the experiences of the workshop had sharpened their understanding of the problem of teaching about vocations to the point where they were able to do what they felt was much better teaching with their students. Some of them not only taught the units they had prepared but went on from there to plan additional activities and carried these out as well. The experience of actually developing resource units, unipacs and teaching units was beneficial in that it caused teachers to justify to themselves what and how they were proposing to teach about vocations. This has very positive implications for in-service education of those involved and contributes to their professional improvement. This conclusion was supported by comments from several administrators of buildings where workshop participants taught.

8. In a meeting held in the spring of 1972, after the participants had had nearly a year in which to try out their ideas, the progress made by them was discussed and analyzed. There was consensus among the participants that the experience of taking part in the workshop had been highly beneficial. Advantages cited included their own increased knowledge about vocations, the importance to children and to the community of a learning program centered on vocations and their greater awareness of the importance of planning learning activities thoroughly based on the needs and interests of their students.
9. As a result of the workshop experiences, one participant, an elementary school principal, has given addresses to local service clubs on the subject, has provided leadership on this topic for an organization of principals to which he belongs and has been invited to participate in meetings at the state level to be conducted on this topic during the summer months. This was ample evidence that he has developed a leadership role in this subject and is exercising a positive influence in his professional circle.

Recommendations

The nature of the problem is basically one in which the educational programs fail to deal with the realities of a world which actually exists. This is a highly complex society, one in which change is occurring at a bewilderingly increasing rate. It is also a society in which technology is playing an ever-increasing role. To expect that students will somehow magically be able to find for themselves an appropriate place in such a complex society without any preparation or an inadequate preparation is entirely unrealistic and does great violence to an acceptable concept of the true role of education.

Recognizing the existence of the problem and

understanding the causative factors are essential first steps in any effort to come to grips with it. The development of effective means of dealing with it is certainly a logical next step. This project was predicated on these thoughts and the plans developed for the project followed this sequence. As a result of the knowledge gained from the workshop period and the follow-up period of visitation and conferences afterwards, a number of thoughts suggest themselves as recommendations for future actions.

1. While the project described involved only twenty teachers, a condition which was dictated by financial considerations and by other elements of statistical model, control, etc., it has produced evidence which supports the hypotheses which formed the basis for the plan of action. The lessons learned from this pilot study are supportive of the ideas held and of the plan which was tested. It would appear from the conclusions drawn from this study that the approach taken is a feasible one. The elementary school level is not too early to begin giving attention to better education about vocations. To wait until later ages is to run the considerable risk of being too late to change already firmed attitudes of children. A viable program designed to deal with the problems of biased attitudes towards vocations must certainly have its start at the elementary grade levels.

2. Since the elementary school teacher is such a key person in the development of elementary school programs, efforts to change programs must begin with those teachers. It is becoming more widely recognized and accepted that the professional preparation of a teacher is a task that does not terminate with the awarding of a bachelor's degree. Rather, it is a program which is continuous throughout the entire career of that person, no matter what the length of that career may be. Therefore, to have any impact upon the education of children, changes must be made in the attitudes, understandings and skills of the teachers who work with them. The idea of a work shop held in the summer months when a teacher is free of teaching responsibilities is one way of providing the in-service education necessary to assist teachers in understanding the importance of teaching about vocations and of developing the plans and tools for doing this. The information gained from this study supports this concept. What is now needed is a large scale effort to reach greater numbers of teachers. A series of workshops conducted on campuses of universities in the state could be planned using the experiences and knowledge gained in this pilot study. The benefits of such activity would thus be shared by all of the schools of the state. Participants of this pilot project could serve as important resource persons in such a program.

3. The task of re-educating teachers with regard to his subject is an enormous one but its importance can not be overstated. Even the five weeks spent on this project would need to be augmented through additional effort. It would be highly desirable to have school districts throughout the state, recognizing the importance of the task, plan and carry out in-service programs in each district which would be designed to assist teachers with the task. Materials for their use, plans for the program and resource persons to assist could be provided in accomplishing this large scale effort. This would be an excellent opportunity to marshall the total resources of the State Department of Education, the universities and the local school districts in a coordinated effort to plan and implement needed programs for vocational education.

4. The in-service education provisions would provide attention to assisting present teachers in the elementary schools of the state. It is equally necessary and important that some attention be given to those teachers now in training. The institutions of higher education presently training teachers should provide for assisting students about to become teachers with recognizing the problem and developing the means for dealing with it once they begin teaching. Programs of teacher education should include attention to teaching about vocations. It is encouraging to note that at this university where the pilot project workshop was held, the involvement of resource persons from several departments has stimulated interest and activity devoted to the problem. The Department of Industrial Education, the Department of Home Economics and the Department of Curriculum have recognized the importance of this program and future plans for these departments call for more attention to this aspect of teacher education. It is gratifying to note this interest and activity but it is further recommended that formal programs be developed with state support to systematize these efforts and to expand them.
5. With the commendable steps being taken in the State of Ohio to establish area vocational schools accessible to all students in the state, this seems an appropriate time to develop a greater public awareness of the need to begin better education about vocations in the elementary schools. Orientation of parents through study groups, meetings, and other techniques would be useful in both informing the public and in enlisting their aid in a total community effort. It would also considerable enhance the value of the programs of the area vocational schools by providing better articulation with the programs of the elementary and junior high or middle schools. The recommendation is made that this should be made part of each plan for an area vocational school.

The problems of society today are reflected in the related problems of the schools. These are numerous and at the same time, they can not be ignored. Their presence is made painfully evident by the disturbances that occur in each instance. Despite their persistence, these problems can and must be dealt with in a logical and dynamic fashion. The key lies in the people of our society. In the pilot project that was conducted, perhaps the most rewarding observation noted was the dedication of the participants. They entered upon the project freely and openly. They applied themselves diligently and unstintingly. They exhibited a sincere interest in bettering themselves and their ability to do a better job. Their reactions provide ample evidence that we do possess all of the means for improving our educational programs. As long as educators are willing to do these things, there will be hope for improving education through the use of the knowledge we have available to us. Society, of course, will gain from this but the greatest benefactors will be those who constitute our most valued resource, our children and youth.

Appendix I

TEST OF TEACHER ATTITUDES TOWARDS VOCATIONAL EDUCATION

Miami University Oxford, Ohio
School of Education Project S.T.A.V.E.
Dr. N.P. Georgiady, Director

Directions: In the left hand margin, check the box for the answer which best describes your reaction to that statement.

__Strongly Agree __Agree __Uncertain
__Disagree __Strongly Disagree

1. __SA __D __A __SD __Uncertain — Decisions about vocational career choices should be made only by teachers since they know best what students are capable of.

2. __SA __D __A __SD __Uncertain — Pumping gas and servicing cars do not constitute worthy career goals.

3. __SA __D __A __SD __Uncertain — College or university attendance is essential to success in life.

4. __SA __D __A __SD __Uncertain — In general, the elementary school curriculum provides satisfactory attention to teaching about vocations.

5. __SA __D __A __SD __Uncertain — Students who do well in academic subjects do not belong in vocational education.

6. __SA __D __A __SD __Uncertain — Children from disadvantaged homes should consider themselves lucky to get any kind of job.

7. __SA __D __A __SD __Uncertain — Teachers should give more attention to students who will eventually take office jobs rather than to those who will work in machine shops.

8. __SA __D __A __SD __Uncertain — Representatives from business and industry can provide useful information about vocations as resource persons in the school classroom.

9. __SA __D __A __SD __Uncertain — Teachers need help in knowing more about vocations so they can do a better job of teaching about them.

10. __SA __D __A __SD __Uncertain — Teaching about vocations cannot be effectively carried on before students reach the high school level.

11. __SA __D __A __SD __Uncertain — Elementary teachers should relate course content to the nature and value of job careers.

12. __SA __D __A __SD __Uncertain — The most worthwhile jobs call for a university degree or at least some university training.

13. __SA __D __A __SD __Uncertain — The elementary school curriculum should be confined to study of academic subjects.

14. __SA __D __A __SD __Uncertain — There are many jobs important to our lives that are not readily visible to people.

15. __SA __D __A __SD __Uncertain — When careers are considered, the satisfaction one derives from his job should be a factor in his choice.

16. __SA __D __A __SD __Uncertain — The child's family background should not prevent him from considering any vocation.

17. __SA __D __A __SD __Uncertain — Teacher training programs do not provide enough attention to giving teachers an understanding of varied vocations available to youth.

18. __SA __D __A __SD __Uncertain — Counseling in the elementary school should be handled only by counselors trained for the job.

19. __SA __D __A __SD __Uncertain — Students whose job plans are modest deserve as much attention from teachers as those whose job goals are more ambitious.

20. __SA __D __A __SD __Uncertain — Teachers do not have time to be concerned with sources of information about vocations.

21. __SA __D __A __SD __Uncertain — Having a college degree assures one a good job.

22. __SA __D __A __SD __Uncertain — When careers are considered, salary should not be the only factor.

23. __SA __D __A __SD __Uncertain — In the classroom, information about vocations should be provided only by the teacher.

24. __SA __D __A __SD __Uncertain — Teachers should be aware of the many sources of information about vocations.

25. __SA __D __A __SD __Uncertain — Teacher training programs should be confined to providing backgrounds in academic subjects and teaching about these.

26. __SA __D __A __SD __Uncertain — Since some careers are held in high regard by society, these should be stressed to students.

27. __SA __D __A __SD __Uncertain — Being a service station attendant requires very little skill.

28. __SA __D __A __SD __Uncertain — An office job is more desirable than one where a person works with his hands.

29. __SA __D __A __SD __Uncertain — Counseling in the elementary school should be carried on by teachers as well as counselors.

30. __SA __D __A __SD __Uncertain — Teachers should be more aware of some vocations where the future may be brighter than others.

31. __SA __D __A __SD __Uncertain — Since some careers are held in low regard by society, these should be discouraged to students.

32. __SA __D __A __SD __Uncertain — Preferences of parents for vocations for their children should not be questioned by teachers.

33. __SA __D __A __SD __Uncertain — Improved curricula regarding the world of work should be the concern of teacher trainers.

34. __SA __D __A __SD __Uncertain — Teachers should work closely with business and industry in developing curricula about the world of work.

35. __SA __D __A __SD __Uncertain — White collar jobs are more important than so-called blue collar jobs.

36. __SA __D __A __SD __Uncertain — Counseling in the elementary school is not as important as teaching about the three R's.

37. __SA __D __A __SD __Uncertain — When careers are considered, those that pay most should be shown preference.

38. __SA __D __A __SD __Uncertain — The attitudes held by people regarding the worthiness of various vocations are generally sound.

39. __SA __D __A __SD __Uncertain — By both overt and covert behavior, the elementary teacher exercises considerable influence on the attitudes of students.

40. __SA __D __A __SD __Uncertain — A vocational choice should be made on the basis of the individual's aptitudes for that kind of work.

41. __SA __D __A __SD __Uncertain — Jobs such as construction work, janitorial service, department store sales work, etc. can easily be handled by anyone.

42. __SA __D __A __SD __Uncertain — Teachers should know about vocations such as agriculture where opportunities are decreasing.

43. __SA __D __A __SD __Uncertain — Teachers should give attention to all students regardless of the kinds of jobs the students will someday hold.

44. __SA __D __A __SD __Uncertain — Elementary schools should provide greater emphasis on preparing students for eventual employment.

45. __SA __D __A __SD __Uncertain — A job where a person can dress neatly is better than a job where a person's clothes become soiled.

46. __SA __D __A __SD __Uncertain — The follow-up survey of students leaving school is an effective way of gaining information needed for the improvement of school programs.

47. __SA __D __A __SD __Uncertain — Parents know best which vocations are appropriate for their children.

48. __SA __D __A __SD __Uncertain — Vocational education is an appropriate place for troublesome students.

49. __SA __D __A __SD __Uncertain — Teachers should know about vocations such as the service industries where opportunities are increasing.

50. __SA __D __A __SD __Uncertain — Many of the attitudes of students towards vocations are formed as early as the elementary school years.

Appendix II

Newspaper on Occupations

Artist

There are several kinds of artists. An artist is a person who draws, paints or sketches. You don't have to be noticed by anyone to be an artist. A commercial artist is an artist who draws for books or papers. A cartoon artist is an artist who draws for cartoons or funny papers.

Art school is required for some artists. There are different kinds of art schools. My friend Cindy Martin goes to the Dayton Art School. There are schools and colleges that have art classes. Our class has one. We draw and work with paper in ours.

I think an artist would be a nice hobby to have, but I would rather be a reporter. An artist takes much drawing and thinking and I like to draw. So my hobby is being an artist. I love artists. Someday I might be one.

--Chatty Mathews

Doctor

A doctor is one who treats wounds or sickness of body or mind as a physician. The things doctors do is heal the sick ones, give operations, treat the wounds and give medicines to the sick ones.

The training you have to have is about eight years. Medicine goes on night and day, night and day from July 1 to the following June 30.

I am interested in it because I want my world to stay healthy. Also, I want to help the people of my world get along better.

--Dale Flora

Practical Nursing

A practical nurse requires daily care of patients, housekeeping, bandaging, emergencies, mental health, illnesses and diseases.

Training requires one year in school. It requires abilities to read and grasp simple materials in English; to understand and carry out simple instructions; to recognize one's limitations and to ask questions. It requires the ability to write simply and clearly in English and to solve simple problems such as how to help someone brush their teeth. It also requires the ability to get information about the patients illness and related matters.

I am interested because I would like to help the people that need it.

--Amy Foster

Sports Car Driver

A sports car driver who wants to race goes to a racing drivers' school run by a sports car club. You have to enter a race and sometime you will race just one person at a time. You are a person that can drive good and you have to have a car that is in good shape.

I am interested because I like racing.

--Dave Hoffert

Actress

An actress is a female, a young girl or woman who acts in plays, movies, television, singing groups or any other kind of place.

Usually they are on a stage. An actress usually memorizes her part she has to speak. She also needs to be a good athlete if she is going to be an actress. She should be able to do all kinds of different tricks with her body. She also has to be strong. If she is in a singing group, she has to know how to sing right and move her body.

A college major in drama is the best preparation. Private acting schools, community theaters also give training and experience. You may also have to take athletic classes for actresses to learn how to move your body.

The reason I am interested in it is because I've always wanted to know how they could act so well and are able to do their stunts. I also wanted to know how they became one.

--Pollyanna Boyd

The Occupation of Nursing

Nursing is the art of caring for sick people. They learn about parts of the body and how to care for patients.

The training for this is 18 months or ome year to learn about everything. And then if you want to be a registered nurse, you have to go six years.

I would like to be a nurse because Ilove to help sick people get well again. And I would like to work in the baby department and help sick babies.

--Carolyn Sue Warner

Engineer

Engineer has two meanings: (1) a technician, mechanic or skilled worker who operates a locamotive, stationary steam engine, etc. (2) a college-trained professional man or woman eho practices the applied science of engineering.

An engineer studies chemicals, designs, constructions and repair of public work buildings. He studies all electrical systems, invents and builds airfields.

An engineer must have knowledge of physics, math, chemistry, and other sciences. An engineering degree requires four years of work in college.

I am interested in engineering because of the invention and discoveries of mankind.

--Bob Platt

Doctor

A doctor is a person who takes care of sick and ill people and attempts to cure them.

A doctor of medicine can either perform his duties in a hospital or have an office and have patients come see him.

The training needed is first pre-medicine in college, then on to medical school, and then you receive your degree as a Doctor of Medicine.

The pre-medical training in college takes four years and medical school and internship in a hospital is another four years. A total of eight years of training.

I like to help people and care for them.

--Doug Jacquimen

What Nurses Do

Nurses care for sick and injured people. Some nurses visit in homes of unhealthy people. Today, a nurse may choose maternity, medical, surgical, pediatric, psychiatric, or public health nursing. Nurses are in demand in the armed forces, schools, for home visits, and also in business and industry.

A registered nurse needs about six years of training professional needs, about four to five years and a practical nurse 12-18 months. A practical nurse should have an eithth grade education but a mini-course in a public or approved private school.

I want to be a nurse because I like to see science in operation in the human body.

--Debra Kiehl

Artist

It is someone who draws very good. You have to go to a class and learn and sometimes you draw someone. It really looks like him. You will draw for some years.

You have to go to school for a lot of years. It takes a lot of time and work.

I am interested in it because I love to draw and Mom was an artist.

--Dana Lavey

My Occupation

My occupation when I grow up is to be a housewife. Some of the things she does is clean house, fix the meals and make beds. Some more things are set the table, shake rugs and wash dishes. Sometimes she goes shopping, and takes care of children.

The training needed is to take Home Economics in high school. Other training is by helping her mother at home. She gets some training after she gets married by doing the work.

I want to be a housewife because I like to take care of children and cook dinner and clean house.

--Darcie Mercer

President of U.S.

To be president you must be over 35, a native-citizen of the United States, and at least fourteen years resident in U.S.A. You must be a republican or democrat. If I run for president, I will have to make lots of speeches. The president passes the laws that congress makes. Some people think that women aren't good enough to be president. I think it's stupid.

My speech: "There will be no taxes. Kids only have to go to school a half a day. The poor people will be able to enjoy life like we do."

--Barbara Jean Wirring

Elementary School Teacher

I would like to be an elementary school teacher. The teacher uses many teaching devices to instruct her pupils. She may use textbooks, workbooks, resource books, magazines and newspaper clippings. She may use slide films, motion pictures, record players, or television programs. Also use charts, posters, or maps. She can bring an aquarium with goldfish, frogs, turtles. What you usually do is talk with the parents and give a test, or teach history, math, science, English, geography or any other subject. I would like to do this to help kids get a better education.

--Bonnie Subler

Train Engineer

In a yard, I'd have to follow orders of the yardmaster. I'd be in charge of the operation of the engine. I'd be adapted with the parts and controls. I'd be called upon to run a wide variety of engines. I'd have to watch and test the operation of the airbrakes. I'd look forward, observe and obey all signals of the fireman and along the railroad.

I'd have to determine where I'd wish to work. Then I'd make application to the division office of the railroad chosen. I'd have to apply either for job of fireman or trainman. If I was accepted, I must pass the physical examination. Then I'd work my way up till I was an engineer.

I like trains because of the railroad near state route 37. I used to watch them switch around 10:00 to 11:30. To since I can't see the railroad anymore, I have my own model railroad. Ilike to read books about trains, like the "Model Railroader" I receive each month.--

Daryl Reck

Appendix III

MAMMALS - A RESOURCE UNIT

I. VOCATIONAL OBJECTIVES

A. To develop the awareness that there is a relationship between mammals and job opportunities.
B. To make the students aware that some industries are dependent upon mammals for sources of material.
C. To acquaint the students with various occupations and industries that do indeed rely upon mammals for their livelihood.
D. To make the students aware that many occupations are interrelated and actually dependent upon one another.
E. To help the students develop a healthy attitude towards work.

II. INTRODUCTORY ACTIVITIES

A. Content - to arouse curiosity and to stimulate interest
   1. Develop a bulletin board showing the close relationship between many mammals and the various industries.
   2. Show the students the book "The Management of Wild Animals in Captivity," and initiate a discussion of the various factors (jobs, etc.) associated with keeping animals in captivity.
   3. Show the film "Zoo Animals" to begin a list of questions for study.
   4. Discuss domesticated mammals as opposed to wild mammals in relation to their use in industry and in providing job opportunities.
   5. Ask the students how many people it takes to produce a steak. Then show them the following list and ask them to tell how each persons job is related to producing the steak and how the jobs are related to each other.

      How Many People Produce a Steak?

      b. banker
      c. chemist
      d. steel manufacturer
      e. oil refiner
      f. sugar refiner
      g. cotton ginner
      h. flour miller
      i. veterinarian
      j. airplane pilot
      k. lumberman
      l. feeder
      m. truck driver
      n. railroads
      o. stockyard personnel
      p. meat packers and inspectors
      q. retailer
   6. Discuss other mammals that have a significant impact upon some phase of industry.
      A. poultry
      b. pigs
      c. sheep
      d. milk cows
      e. minks
      f. rabbits
      g. otters
      h. beavers
   7. Show the filmstrip "what Are Job Families" and discuss it.

III. SUGGESTED ACTIVITIES

A. 1. Have the students prepare a chart or bulletin board depicting mam-

mals in the community that play a significant role in some phase of industry.
2. Group or individual research on an area of interest.
3. Create an interest corner in which are various things that have come from mammals.
4. Have a resource person come in and speak to the class on one or several of the following:
   a. taxidermist
   b. dairy farmer
   c. beef farmer
   d. poultry farmer
   e. zoo director
5. A field trip to one or more of the above peoples place of employment or residence would be beneficial.
6. Have the students view "Farmers of the World."

IV. QUESTIONS AND PROBLEMS (to be added to and formulated by the children)

1. Contents - below are a few examples of a few of the job opportunities related to mammals.
   a. Dairy Products Business
      1. dairy farmer
      2. accountants
      4. advertising men
      5. bacteriologists
      6. butter maker
      7. plant managers
      8. dairy inspectors
      9. field buyers
      10. ice cream manufacturers
      11. entomologists
      12. conservationists
      13. chemists
      14. feed dealers
      15. veterinarians
      16. store clerks
   b. Fertilizer Business
      1. chemists
      2. demonstrators
      3. plant executives
      4. airplane pilots
      5. salesmen
      6. animal physiologists
      7. health workers
      8. truck drivers

   There are thousands of more jobs relating to mammals. We will discuss these as they arise.

VI. EVALUATION

1. Evaluation is carried on throughout the unit and it includes techniques such as:
   a. the type of projects completed
   b. observing the children at work
   c. having group discussions
   d. research papers

VII. INSTRUCTIONAL RESOURCES

1. Filmstrips
   a. "What is a Job?"
   b. "What are Job Families?"
   c. "What Do You Like to Do?"
   d. "What Good is School?" (Foundation for Occupational Planning Filmstrips available in MU library.)
   e. "Preparing for Jobs of the 70's" 1969, Harcourt and Brace.
2. Films
   a. "Zoo Animals" Academy Films 69A 48 (part II)
   b. "Deer Management Research" 16 min. 1970 Gerina Press 70A28
   c. "Dynamic Careers Through Agriculture" 16 min., 1969 Pharmaceutical Mfrs. 69All
   d. "Farmers of the World" 16 min. 1970, Serina Press 70B7

3. Books
   a. "Find Your Career in the Poultry Business" Interstate Printing, 44 pp. 1969
   b. "The Management of Wild Animals in Captivity" U.S. Chicago Press, 1964
   c. "Meat Packer" Swift and Company, 1967

4. Resource People and Places
   a. Taxidermist - at his shop
   b. Diary farmer - on the farm
   c. Beef farmer - on the farm
   d. Poultry farmer - on the farm
   e. Zoo director - Cincinnati Zoo

Appendix IV

A UNIT ON THOSE WHO PRODUCE GOODS AND SERVICES FOR OUR CITIES

Level 3

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Dr. N.P. Georgiady, Director

I. SIGNIFICANCE OF THE UNIT

The purpose of this unit is to take a look at some of the specialized roles in which people are involved in order to help perform economic functions which are needed in our city.

We will look at some of the various roles to explore the vocational possibilities that are around us in the world of work and how these vocations are of help to all who live in the city.

II. POSSIBLE LEARNING OUTCOMES

A. Understandings
   1. The learner will gain an understanding of the role actions that people perform in the production of goods and services.
   2. Understand that people produce either goods or services to meet the needs and wants of other people who in turn produce some goods or services for others in our society.
   3. Who are some of these people who perform some of these roles?
   4. Learn why it is important that each of us works to produce something that will help us, and others to get the things that we "want".

B. Attitudes
   1. To develop a better attitude toward the world of work.
   2. To develop a respect for all persons who perform work that contributes to the welfare of others.
   3. To show that people in all levels of production can be happy with their contributions to society and to their personal gain.

C. Skills
   1. To develop the skill to recognize various kinds of vocational opportunity present in the production of goods that we use.
   2. To develop the skill to recognize various kinds of vocational possibilities in some of the service areas that affect us in our city.
   3. To be able to tell other members of the class of some type of vocation that the student has gained information about, either through research or from talks with parents or relatives.
   4. To be able to write about some product or service that the student has used.

III. CONTENT OUTLINE

A. Some people who produce goods
   1. Who are some people who produce goods?
   2. Do we need goods?
   3. Do other people need goods?
   4. Why do some people produce goods for others?
   5. Who do I know that has something to do with producing goods?

B. Some people who produce services
   1. Who are some people who produce a service?

2. Are services necessary?
3. What do people get in return for producing services for others?

IV. SUGGESTED ACTIVITIES

A. Introductory Activities
   1. Bulletin board display of men and women with a number of various kinds of jobs being performed in both the production of goods and services.
   2. Exploration of the kinds of services students do in our room.
      a. Cleaning the chalkboard
      b. Putting books away
      c. Handing out materials
      d. Running errands
      e. Helping other students understanding of academic problems
      f. Fixing bulletin boards.
   3. The making of tapes with stories to help others in the mastery of reading.
   4. The making of bread, cookies, and sharing of these with others.

B. Developmental Activities
   1. Talk with parents about the kinds of work that they do and make chart with the various kinds of service and production jobs that are evident in our class.
   2. In relation to production, develop meaning of factory assembly line by talking about them and by setting up an assembly line in the classroom. This could be done to assemble a class made newspaper or book.
   3. Invite to class persons from production jobs and service jobs to talk about their jobs.
      1. Production - an assembler from National Cash Register Company (NCR)
         —A plant foreman
         —Others as interest directs
      b. Service - the school nurse
         —Police officer
         —Recreation Leader
         —Other as interest directs
   4. Show films and filmstrips following the production of a product from raw materials to finished product. Look at both open ends of this process such who furnishes the raw materials and how is the product distributed and sold once produced?
   5. Explore who provides services for us in school?
   6. Take field trips to factories in the city and to some city service to see the variety of job roles connected with each of these areas from managerial down through janitorial service.

C. Culminating Activities
   1. Write letters to thank those who came to visit our class and to those places where we took field trips.
   2. Visit other classrooms to talk with other students about our experiences with world of work and the kinds of work roles that people are involved in.
   3. Develop kinds of service roles that we will be able to perform in our school.
      a. Cleaning up the classroom and playground
      b. Serve as a tutor for a first year student or for a student having problems with something that I understand.
      c. See a younger student to school and home safely.
   4. Display pictures, both cut from magazines and our own art work, in the hall for other students to share.
   5. Make an experience book that other classes can use as a take off point in the study of those who produce goods and services.

6. Put on a play demonstrating one or more of the job roles that we have discovered. Invite other primary grades to view this production. Also look at the job roles that we will need to put on this play.
   a. Writers
   b. Costume makers
   c. Actors
   d. Director
   e. Publicity
   f. Property managers
   g. Lighting

V. SUGGESTED MATERIALS

A. Reading Materials
   1. *People and Their Actions in Social Roles,* Vincent Presno and Carol Presno, Prentice Hall, 1967.
   2. *You Visit a Dairy-Clothing Factory,* Chicago, Benific Press, 1965.
   3. *The True Book of Policemen and Firemen,* Chicago, Childrens Press, 1954.
   4. *Let's Look Under the City,* New York, William Scott, 1954. Tells how we are provided with such essentials as gas, water, electricity, and telephone service.
   5. *How People Live in the Big City,* Chicago, Benefic Press, 1964. A discussion of how the city helps its inhabitants and their responsibilities to the city.
   6. *Big City Workers,* Chicago, Follett Publishing Co. 1953. Briefly describes many work roles vital to the well-being of city dwellers.

B. Audio-Visual Aids
   1. *Keeping the City Alive,* Encyclopedia Britannica Films. Shows how a city is supplied with food, water, electricity, gas, communications, and transportation. Filmstrip.
   2. *Working in the City,* Encyclopedia Britannica Films, describes types of jobs in factories, offices and other types of jobs. Filmstrip.
   3. *School Helpers,* Describes duties of the principal, teachers, secretary, nurse, custodian, bus drivers, and safety patrol.
   4. *Housing in Big City,* Filmstrip, Eye Gate House Inc., Shows building needs of a city.
   5. *Big City Workers,* Shows transportation of workers to city jobs. Describes types of work available.
   6. *The Story of the Whosesale Market,* Film 11 min., Churchill Films. Shows the operation of a wholesale market and its dependency on the cooperation of many workers.
   7. *The City,* Film 11 minutes, Encyclopedia Britannica Films.

C. Community Resources
   1. Use parents who are willing to come to school to discuss their job roles.
   2. Visit a factory to see a production line in action.
   3. Refer to "Speakers Resource Booklet" for persons who are willing to come to school to talk with us about various job roles.
   4. Call Senior Citizens for persons who have served in various job roles.
   5. Ask for a person to talk with us from the Employment Bureau.

D. Equipment needed
   1. Movie projector
   2. Filmstrip projector
   3. Overhead projector
   4. Tape recorder for interviews and visiting speakers
   5. Paper, writing, and construction for making of a book.
   6. Art supplies, paper, paint, crayons to make pictures of experiences.

7. As many books as can be borrowed from the school learning center and from the public library that demonstrate job roles.

VI. EVALUATION

A. Write a short story that tells of some "goods" we have seen produced.

B. Write a short story that tells of two jobs that people do to produce services for others.

C. Make up a story, "I would like to be a . . . " when I enter the world of work and record this story on a cassette tape recorder. (This tape is to be kept and used during the parent conference.)

D. Draw a picture of your parents at their work. This may also be a friend or the family or another relative at their work if the student wishes.

Appendix V

OUR WORLD OF WORK

In our complex and rapidly changing society, there are many, many different occupations.

SUBJECT AREA: Social Studies

PERFORMANCE LEVEL: Kindergarten

PURPOSE: The learner will develop an awareness of the fact that he is a member of a rapidly changing society, in which there are many different occupations.

GOALS: Through many varied experiences, the learner will develop an awareness that *every* job is useful in some way to our society.

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Dr. N. P. Georgiady

DATE: August 27, 1971

I. MAJOR IDEA

In our complex and rapidly changing society, there are many, many different occupations.

II. COMPONENT IDEAS

A. People are consumers.
B. Things must be produced before they can be consumed.
C. Producers are people who make useful things or who do useful work.
D. There are two kinds of producers:
   1) those who make useful things - producers of goods
   2) those who do useful work for others - producers of services.
E. Every person is not a producer - some are too old; some are too young; some are sick.
F. People get a good feeling - a sense of satisfaction when they do useful work.
G. Useful work is appreciated.
H. Each person undertakes a certain job - at home, in the neighborhood, at school, in the world.
I. Division of labor helps get the job done faster and better.
J. Division of labor makes people interdependent.
K. Tools and machines must be properly maintained to help us produce faster and better.
L. The reward for work is called income.
M. Workers who produce faster and better usually earn more.
N. Every job involves useful work.

III. OBJECTIVES

A. To broaden the child's understanding of our working world.
B. To teach fundamental skills necessary for participation in the working world.
C. To develop the proper attitudes toward the working world.
D. To develop attitudes, skills, habits, and appreciations needed in our changing society.
E. To totally involve the child's family and the community in the learning experiences.

IV. SUGGESTED ACTIVITIES

Visit to the elementary building
Since our kindergarden classes meet in a

church, our children are unfamiliar with the elementary building. So, our very first experience will be to take a walk to the elementary building where we will see and talk with the following people:

secretary
custodian
cafeteria workers
speech therapist
music teacher

Visit the high school

A visit to the high school will be the second experience. Here the children will visit the following:
principal's office
guidance counselor
home economics room
business room
band room
shop
library
gym

Visit the board office

The children will visit the board of education office and meet the superintendent of schools. They will see where the board of education meets and will learn the activities of the board. They will also meet the clerk of the board and her assistant.

After visiting the above three places, our class will be visited by a bus driver, a member of the local board of education, and our own custodian. Each of these people will explain their specific occupations to the class.

Visit the library

The librarian will discuss her job and the library facilities. The children will learn how to choose books and check them out for use in our classroom.

Visit a building construction site

The children will be able to see the different equipment and the different jobs involved in the building industry.

Visit a highway construction or repair site

The children will observe the different pieces of equipment used in the construction or repair of roads and the different occupations involved.

Visit a supermarket
Visit a printing business
Visit a meat processing plant
Visit a company which makes containers
Visit several different kinds of farms
Visit a department store
Visit a creamery
Visit a factory where tools are made
Visit a factory which produces plastic products

Have the following people come to visit our kindergarten class, wearing the uniform in which they work, bringing the tools they use, so that they can explain their particular occupation to the class.
truck driver
lineman
nurse
insurance salesman
tool and die maker
service man at N.C.R.

Other occupations in the community are:
doctor
dentist
chiropractor
baker
gas station attendents
grain elevator operator and workers
restaurant employees
bank employees
pharmacist
barber
beautician

people in sales:
- woman's shop
- men's shop
- furniture store
- tractor sales
- car sales
- building and loan employees
- telephone company
- dairy employees
- creamery employees
- lawyer
- realtor
- newspaper employees
- welding factory employees
- ministers
- plumber
- electrician

- shoe store
- appliance store
- hardware store
- jewelry store
- floor covering store

The children will learn how to interview their parents to find out what the occupation of each may be.
Each parents' occupation will be discussed by the class, one at a time.
Each child will tell the class what his or her mother and father do.
The class will discuss that job and others which may be related to it.
The child, about whose parents we're talking, will color his "father" and "mother" in the uniforms in which they work. These mothers and fathers will be kept and displayed in the classroom.
The instructor will read poems concerning the occupation; read books; show filmstrips and teach the children songs that are related to each particular occupation as it is discussed.
The class will take field trips to see the mothers and fathers at work whenever possible. When this is impossible, the mother and father will be invited to come to the classroom and discuss his or her occupation with the class.
Following a field trip or parent visit, the class will discuss what they learned about that particular occupation; for example the uniform worn, the tools used, related jobs.
The class will draw or paint pictures concerning the field trip or parent visit. These will be displayed and labeled.
The children will role-play either the job discussed or a related one.
With each new occupation discussed, a bulletin board will be developed concerning that occupation.
Throughout the year, the class will develop a book of experience stories that they have written about the particular occupations.
They will collect pictures showing *all* kinds of occupations.
After the occupations of all of the parents have been discussed, the class will take several walks around the community. After each walk, we will discuss the different occupations the children noticed on the walk which had not been previously discussed.
These occupations will be listed and the children will make pictures about these people. We will also list any other occupations and try to find pictures illustrating them.
The following are father's and mother's occupations and some related occupations:
farmer
- dairy farmer
- cattle farmer
- grain farmer
- veterinarian
- herdsman
- poultry farmer
- sheep farmer
- egg farmer
- hatchery
- animal trucker
- livestock buyer
- fur farmer
- bee keeper
- butcher

meat cutter
milkman
dairy workers
animal nutritionist
horse breeder
trainer
groomsman
jockey
stable keeper
blacksmith
shepherd
owner tenant

clerk
buyer
cashier
bookkeeper
night watchman
custodian
advertising department
window dressers
store decorators
lost and found department
information department

principal
teacher
secretary
superintendent
school board
cafeteria workers
nurse
custodians
guidance counselor
librarian
coach
speech therapist
band director

salesman
insurance
automobile
real estate
manufacturers representative
wholesale
retail

meat cutter
farmer
butcher
truck driver
cashier
bag boy
stock man
produce man
delivery man

truck driver
platform man
packer
unloader
helper

nurse
doctor
dietician
pharmacist
physical therapist
hospital administrator
podiatrist
dentist
orthodontist
pediatrician
opthalmologist
x-ray technician
medical technologist
medical record librarian
medical laboratory assistant
anesthesiologist
ambulance driver
ambulance attendent
surgeon
optometrist

waitress
host or hostess
chef
baker

airplane mechanic
pilot
flight engineer
lead mechanic
overhaul mechanic

tool and die
  tool workers
  die workers
  machinists
  production workers

convolute operator
  employees of a paper container factory

printer operator
  employees of a printing company

lineman
  groundman
  troubleman
  cable splicer
  meterman
  meter reader

bulldozer operator
  crane operator
  tractor operator
  shovel operator
  pile driver operator
  hoist operator
  derrick operator
  concrete mixer driver
  trench excavator
  pump operator

road construction
  surveyor
  cement mason
  hod carrier
  construction laborer
  operating engineers

carpenter
  brick layer
  architect
  electrician
  brick mason
  stone mason
  painter
  plumber
  roofer
  paper hanger
  floor covering installer
  ironworker
  landscape architect

milk hauler
  dairy farmer
  creamery workers

service man
  employees of a cash register co.

inspector
  employees of a company making aircraft parts.

In addition to the previously stated goals, this unit of study is intended to begin to devlop the following in each learner:

1) An appreciation of the parts played by members of his family in the home and community.
2) A recognition of the satisfactions which accompany good work habits.
3) The social skills necessary for later vocational success.
4) The discovery and use of his or her special talents.
5) The value of promptness.
6) An understanding and appreciation of the work done in providing for his needs.
7) An appreciation of the part played by workers in basic occupations and in industry who supply his daily needs.

V. RESOURCE MATERIALS

Filmstrips - Eye Gate

The Baker
The Dairyman
The Shoemaker
The Tailor
The Neighborhood Laundry
The Butcher
The Banker
The Watchmaker and Jeweler
The Fruit and Vegetable Store

The Automobile Service Station
Stocker in a Super Market
The Waitress
The Gas Station Attendent
The Variety Store
The School Cafeteria
The Nurses Aid

Filmstrips - Jam Handy

Trucks
Busses
The School Community
  The New Pupil
  Our School
  School Helpers
  Our Job in the School
  Part of the Team
  School Courtesy

Filmstrips - EB

Our Library
Our Police Department
Milking
Gathering Eggs
Feeding the Animals
Haying
Picking the Vegetables
Picking the Fruits

Filmstrips - SVE

Our Post Office
Policemen and Firemen
The Story of Milk
The Story of Fruits and Vegetables
The Story of Meats
Dairy Helpers

The Town Community
This is Our Town

Encyclopedia

Childcraft
(Volumes 4 and 10)

Poems

Childcraft Volume I
"I'd like to be a dentist . . ."
"I'll be a baker . . ."
"A garbage man is a garbage man . . ."
"Country trucks . . ."
"They're building a skyscraper"

Books by Carla Greene

I Want to be a Sales Clerk
I Want to be a Farmer
I Want to be a Nurse
I Want to be a Telephone Operator
I Want to be a Policeman
I Want to be a Baseball Player
I Want to be a Beauty Operator
I Want to be a Carpenter
I Want to be a Forester
I Want to be an Architect
I Want to be a Postman
I Want to be a Truck Driver
I Want to be a Storekeeper
I Want to be a Road Builder
I Want to be a Dairy Farmer
I Want to be a Teacher
I Want to be an Animal Doctor
I Want to be a Baker
I Want to be a Homemaker
I Want to be a Pilot
I Want to be a Space Pilot
I Want to be a Librarian
I Want to be a Mechanic
Doctors and Nurses and What They Do
I Want to be a Bus Driver

Records

"Build Me a House"
"The Milk's Journey"
"The Men Who Come to Our House"
  Milkman
  Plumber
  Grocer
  Daddy
  Fireman
  Policeman

Books by others

The Story of Milk and How it Came About by Elizabeth Watson
Perhaps I'll Be A Farmer by Ray Bethers
The Wonderful World of Food by John Boyd Orr
Supermarket Secret by Emilie Vinall
The First Book of Supermarkets by Jeanne Bendick
The Mailman by Paul Witty

Books by others

How Can I Find Out? by Mary M. Bongiorno and Mable Gee
You Visit a Fire Station; Police Station by Eve Hoffman
Let's Go to the Police Station by Sidney Quinn
The True Book of Policemen and Firemen by Irene Miner
Let's Look Under the City by Herman and Nina Schneider
About Helpers Who Work at Night by Elaine Hoffman
Mr. Zip and the U.S. Mail by Jene Barr
Lets Go to a Post Office by Naomi Buchheimer
The True Book of Our Post Office and It's Helpers by Irene O. Miner
People Who Work in the Country and in the City by Clara Ingram Judson
Doctors and What They Do by Harold Coy
This is a Department Store by Georgiady and Romano
Know About Money by Georgiady and Romano
Know About Banks by Georgiady and Romano
When I Grow Up I'll Be A Doctor by Lillian Rifkin
Doctors at Work by Alice Virginia Keliher
First Book of Nurses by Mary Elting
Nurses at Work by Alice Virginia Keliher
When I Grow Up I'll be a Nurse by Lillian Rifkin
Trucks at Work by George J. Zaffo
Toughy and His Trailer Truck by Edith Hurd
Pogo's Truck Ride by Josephine Norling
The Farm Book by Elmer Boyd Smith
Farm Workers by Alice Virginia Keliher
When I Grow Up I'll be a Farmer by Lillian Rifkin
The Dairy by E. M. Johnson
Milk by Mae McCrory
Big City Workers by Catherine Urell
Policeman Small by Lois Lenski
What Do They Do? Policemen and Firemen by Carla Greene
Trucks That Haul by Night by Leonard Stevens
Amazing Mr. Pelgrew by Miriam Schlein
What Does a Policeman Do? by Johanna Johnston and Martin Harris
Hercules: The Story of an Old-Fashioned Fire Engine by Handie Gramatky
Mike's House by Julia Lina Sauer
Let's Go to a Hospital by Diana Hammond
Machines at Work by Mary Elting
Mike Mulligan by Virginia Lee Burton
Wake up, Farm! by Alvin R. Tresselt
Wake Up, City! by Alvin R. Tresselt
Ten Big Farms by Dahlov Ipcar
Brown Cow Farm: A Counting Book by Dahlov Ipcar
Who Built the Highway? by Norman Bate
Who Built the Bridge? by Norman Bate
ABC of Cars and Trucks by Anne Alexander
Here Come the Trucks by Harry B. Lent
Trucks at Work by Mary B. Elting
The Adventures of a Letter by G. Warren Schloat, Jr.

Appendix VI

CLEARCREEK ELEMENTARY RESOURCE PLAN FOR PRIMARY GRADES

by Helen L. Earnhart
Miami University Oxford, Ohio
School of Education Project S.T.A.V.E.
Dr. N.P. Georgiady, Director

I. SIGNIFICANCE OF THE AREA

By making a study of our community a group project, each child can be led to realize that he is an important, responsible part of the community, who receives and appreciates the services rendered to each individual in the community. Through this experience he may be helped to develop a basic concept of the cooperative nature of good citizenship and to learn democratic behavior through practice. He will develop an awareness of vocational opportunities within his own community. In gaining a full understanding of his own community, he has a basic understanding of all the communities in other areas and this will assist him in his study of the world.

II. POSSIBLE LEARNING OUTCOMES

A. UNDERSTANDINGS

1. To gain an understanding of what constitutes a community.
2. To gain an understanding of who our neighbors are.
3. To gain an understanding of the different types of homes and the different types of materials needed to construct them.
4. To gain an understanding of the different types of workers needed to construct our homes.
5. To gain an understanding of the home, with the love and security which it affords, as one of the basic human needs.
6. To gain an understanding that the community consist of families much like our own, but differing in size and composition.
7. To gain respect for the homes of others in the community and to realize that all homes are not alike, nor do they need to be.
8. To gain an understanding of the different types of foods and their sources.
9. To gain an understanding how fathers, and sometimes mothers, provide for their families.
10. To gain an understanding of the interdependence among members of the family and workers in the community.
11. To gain an understanding of the different types of recreation in our community and the importance of these facilities; and our responsibility to help preserve them.
12. To gain an understanding of the history of our community and to realize our community has changed over the years.
13. To gain an understanding of the importance of our past heritage on our lives today.
14. To gain an understanding of our government and it's responsibility to us as citizens and our responsibility for governing ourselves.

15. To gain an understanding of what constitutes materials used for clothing, and their many sources.
16. To gain an understanding of why we must have different types of clothing and how it is made.
17. To develop a first-level concept of transportation, it's importance and the many job opportunities therein.
18. To gain an understanding of the different types of schools, how many people are employed by our system and how these schools contribute to our education.
19. To gain an understanding of the different types of communication in our community and the important of them to our way of life.
20. To gain an understanding of the many different types of occupations and the importance to a community to have different types.
21. To gain an understanding of the role of some of the community helpers that we see daily: the fireman, policeman, health helpers, baker, milkman, and groceryman, etc.
22. To gain an understanding that there are different types of people in the community and all of them contribute their part to the community.
23. To gain an understanding of the importance of the farm to our life in producing the food we eat and materials for the clothing we wear.
24. To develop an understanding of the importance of health and safety in our community.
25. To develop an understanding of the worth of conservation in the community and that there is a diminishing supply of water, soil, and natural resources.
26. To develop an understanding that our natural environment, weather, and climate has an effect on the way we live.
27. To develop an understanding that people in a community depend upon one another for food, clothes, and things that give us happiness, just as members of a family depend upon one another.

B. ATTITUDES

1. Toward an appreciation for our democratic heritage.
2. Toward an appreciation for the interdependence of people who live in a community.
3. Toward an appreciation for the need for various services and occupations in community life.
4. Toward an appreciation of our natural resources.
5. Toward respect and acceptance of differences in ways of life.
6. Toward respect for ideas and contributions of others.
7. Toward a realization that all can do something to make life happier by helping with the work and obeying the rules of courtesy.
8. Toward an appreciation of and respect for health and safety regulations.
9. Toward an increased curiosity toward an environment just beyond his own community.
10. Toward growth in feeling of inner-security in self expression.
11. Toward a desire to bear his own responsibilities.
12. Toward a desire to want to practice conservation.
13. Toward attitudes essential to working effectively with others.
14. Toward an appreciation for the many races of people.
15. Toward an attitude of respect for all workers who contribute to our comfortable living.

C. SKILLS

1. To improve in independent study skills and group work skills.
2. To develop the ability to think and plan for themselves.
3. To develop the ability and increase the oral and written expression.
4. To develop the ability to work individually or in groups.
5. To develop skills in listening.
6. To develop the child's creative ability.
7. To develop a keen observation.
8. To develop the reading skills needed in handling social studies content, such as reading for main ideas, reading for details and drawing conclusions.
9. To develop skills in reading pictures, charts, and maps.
10. Increased vocabulary development.
11. To develop the ability to locate sources of information.
12. To develop the ability to carry on group discussions.
13. To develop the ability to evaluate his own work.
14. Increase the ability to print or write legibly.
15. To develop dictionary skills.

III. SUGGESTED PROBLEMS

1. What kind of people settled in our community?
2. How did the early people live, obtain food, clothing, etc.?
3. How are we dependent on others in our community?
4. Why must our parents work?
5. Where do our parents work?
6. Who are our community helpers? What do they do?
7. What products are made in our community?
8. What kind of workers are to be found in our community?
9. What is the major industry in our community?
10. What things do all communities need to survive?
11. What helped determine the location of our community?
12. Who are/were some of the outstanding leaders and how did/do they help our community?
13. What is a community?
14. Why is it important that we work together?
15. How have people and vocations changed in our community?
16. How can we help our community?
17. How are laws made and why do we have to have them?
18. Who enforces our laws?
19. Do people in our community have different values and beliefs?
20. Where do people in our community go to learn?
21. Why doesn't everyone go to the same church?
22. What can we do to make our community happier?
23. How do we as members of a community contribute to harmony?
24. How can we contribute to to the happiness of our family?
25. What kind of community work can we share?
26. How can we learn to make new friends?

IV. SUGGESTED ACTIVITIES

A. INTRODUCTORY ACTIVITIES

1. Use the table to construct a miniature replica of the town using buildings made from small boxes to represent important buildings; cardboard strips make nice streets.
2. Display books about community life, different types of people who live and work in the area.

3. Put up an assorted bulletin board of pictures pertaining to as many aspects of community life as possible, such as family going to church, school, home, park, post office, work, etc. Caption could be "So This Is Life!"
4. Bring in as many old antique items of long ago life as possible.
5. Try finding pictures and books illustrating the community as it was originally. Maybe a time line might be made showing the changes that has taken place.
6. Prepare a *Who's Who* project, listing names or pictures of prominent citizens of the early community and also people of today. Children might find who the picture is or if he is given a name he might question people of the community to find out what this person did.
7. Ask children to question their parents about their early life and to relate these stories to the class.
8. A picture of the first automobile and one of today might lead a child to search for pictures of the automobile as it was perfected. This could also be carried out with the train, boat, and plane as means of transportation.
9. Life on the farm might be shown by presenting pictures of early farming and equipment and comparing them to today.
10. Discuss early recreation. This information might be obtained by talking to older people then relayed to the class.

B. DEVELOPMENTAL ACTIVITIES

1. Have the class interview their own parents about the changes the community has made through the years.
2. Have an older member of the community come and visit the class to tell some interesting facts about the town.
3. Visit the community bookmobile and find books about olden days.
4. Show film, *Everyone Helps in a Community* (listed in resource materials).
5. With the class, make a circular advertising your community and the points of interest a tourist would find there.
6. Have the class make a scrapbook containing news clippings about the community from their local newspaper.
7. Make a bulletin board to introduce vicariously, people who serve our community and to acquaint the children with the duties and the uniforms of these men and women.
8. Let the pupils choose which community helper they would like to learn more about and divide into committees to interview a fireman, a policeman, a milkman, a mailman, etc. This can be done in class with the committees preparing their questions in advance for their interview.
9. Interview various school workers.
10. Visit a house under construction.
11. Have the committees report on some of the interesting aspects of jobs of people they interviewed, and some of the hazardous parts of the jobs.
12. Draw a simple picture-map of the community; pin picture symbols on to show community points of interest.
13. Visit a museum to see some relics of the region. (in Lebanon)
14. Make a Time Line about the community to establish the sequence of important events in the community.

15. Discuss needs for rules of conduct for group situations to establish need for law and governments.
16. Make mural of various types of farms and the products they produce.
17. Make "Movie" of various community helpers and their services.
18. Have a child or a group of children demonstrate how to use a telephone.
19. Let children show how to make some type of clothing.
20. Tape record visitors discussion and the children's question and answer period - play back later to refresh memories.
21. Make class booklets concerning the community helpers.
22. Make a diorama on community helpers.
23. Pantomine different community helpers and their activities.
24. Make posters on community helpers.
25. Construct a sand table to depict a fire station, post office, and other buildings.
26. Make a puppet and a theatre - Make up a story about community life and give a show.
27. Draw pictures of which community helper they want to be.
28. Soap carving or clay models of community helpers.
29. Construction of a grocery store or fire station etc. from boxes.
30. Camera fans could take pictures of the community helpers.
31. Write simple stories about community life.
32. Invite a policeman, a fireman, postman, plumber, groceryman, dentist, doctor, telephone man, service station attendant, builder, farmer, etc. to visit your school.
33. View filmstrips and films and let children discuss them.
34. Dramatic activities: Be a policeman, fireman, postman, plumber, lineman, builder, etc.
35. Learn to make change at a make-believe store.
36. Use toy telephone to learn the proper way to place calls.
37. Plan a fire drill on the day of the fireman's visit.
38. Learn proper way to mail a letter.
39. Bring various tools used by helpers and let children examine.
40. Arrange an exhibit of the different products raised in our community.
41. Arrange for field trips to observe the many occupations in our community.
42. Storytime where a teacher or student would read about life in a community to the class.
43. Group work on life-size figures of community workers (made by drawing an outline of a child lying on a large sheet of paper, then painting appropriate costume, and cutting out).
44. Make a class project of helping and greeting a new family moving in the neighborhood.
45. Make classroom newspaper.
46. Work together to improve appearance of school room or school grounds.
47. Let the class try their own form of self government for a specified length of time to emphasize democracy. The children can list their own rules and decide own penalties.
48. Make shadow boxes out of shoe boxes of important buildings such as: Schools, Fire Station, Post Office, Church, Bakery, Grocery, etc.
49. Provide the community with bird feeders made in the classroom form

plastic bottles (see Open Highways Reader - 4) thus helping to feed the birds through the winter (community conservation of birds).

50. Plant and grow various kinds of crops: corn, beans, wheat.
51. Experiment with various materials - paper, wood, metal, stone, plastic.
52. Pour water over a slope where there is no plant growth and one where there is grass to see in which case soil erosion will take place.
53. Send the same message through as many modes of communication as possible to see which is most efficient.

V. SUGGESTED MATERIALS

A. LIBRARY BOOKS (Location: Middletown Public Library)

1. *Policeman Paul:* Barr, Jane. Whitman Press: Chicago, 1952
2. *About Helpers Who Work at Night:* Hefflefinger, Jane and Elaine. Melmont: Chicago, 1963.
3. *You Visit a Fire Station and Police Station:* Meshomer, Leonard: Benefic; Chicago, 1965.
4. *Fireman Fred:* Barr, Jane. Whitman; Chicago 1959.
5. *Billy and his Family:* McIntire, Alta; Follett: Chicago 1950.
6. *You and the Community:* Samford, Clarence. Benefic; Chicago, 1963.
7. *What does a Veterinarian Do;* Compton, Grant H.; Doda, N.Y. 1964.
8. *Let's Take a Trip to a Cement Plant;* Riedman, Sarah R.; N.Y. 1959.
9. *Country Mailman;* Beim, Jerrald. Published 1958.
10. *Let's Go to a Court;* McCarthy Agnes. Putnam's; N. Y., 1961.
11. *Doctors and What They Do;* Coy, Harold. Watts; N.Y., 1956.
12. *In the City and on the Farm;* Crabtree, Eunice K.; University, N.Y., 1954.
13. *Curious George Goes to the Hospital;* Rey, Margaret and H. A., 1966.
14. *Curious George Takes a Job;* Rey, Margaret and H. A., 1966.
15. *How Doctors Help Us;* Meeker, Alice; Benefic: Chicago, 1964.
16. *How Hospitals Help Us;* Meeker, Alice; Benefic: Chicago, 1962.
17. *How the City Services It's People;* McIntire, Alta, 1938.
18. *How Schools Help Us;* Hage, M. K. and Ryon, Robert H., 1962.
19. *True Book of Policeman and Fireman;* Cameron, Elizabeth; Grosset N.Y., 1958.
20. *Busy Bodies;* Bowman, Clara. Rand McNally; Chicago, 1951.
21. *About Our Friendly Helpers:* Hoffman, Elaine and Hefflefinger, Jane. Children's Press, 1954.
22. *Mr. Charlie's Gas Station;* Hurd, Edith and Clemont. Lippincott, 1966.
23. *Fireman Save My Cat;* Palazzo, Tony; 1964.
24. *Safety Can Be Fun;* Leaf, Munro. Lippincott; N.Y., 1961.
25. *We Live In the City;* Ray, Bart. Children's Press, 1963.
26. *A Walk in the City;* Dawson, Rosemary and Richard. Viking Press, 1950.
27. *Policeman Small;* Lenski, Lois, Walck, 1962.
28. *All Around the Town;* McGinley, Phillis, Lippincott; N.Y., 1948.
29. *One Bright Monday Morning;* Brown, Arlene and Joe. Random House, 1962.
30. *About Policemen:* Dillon, Ina K.; Children's Press, 1957.

31. *Let's Find Out About Policemen;* Sharp, Martha and Charles. 1962.
32. *Let's Find Out About Firemen;* Sharp, Martha and Charles. Franklin Watts, 1962.
33. *Milkman Freddy;* Helfman, Elizabeth. 1964.
34. *A New Hometown;* Cox, Preston, Wavle. D.C. Heath, Boston.
35. *To School and Home Again;* Crabtree, Eunice K., University, N. Y. 1954.
36. *Living Together at Home and at School;* Cutright, Prudance. McMillan N. Y., 1944.
37. *The Friendly Library:* Briggs, E. M., 1948.
38. *Friendly Neighbors;* Hughley, L. M., 1950.
39. *Friends and Workers;* Gates, A. B., 1951.
40. *How We Get Our Cloth;* McCall, Edith S., Benefic; Chicago, 1961.
41. *Animals That Clothe Us;* Engelbert, Irene Butler, Sterling, N. Y. 1960.
42. *You Visit a Dairy and Clothing Factory;* Mushover, Leonard. Benefic; Chicago, 1965.
43. *Let's Go to a Clothing Factory;* Lazarus, Harry. Putnam's, N. Y. 1961.
44. *How Communication Helps Us;* McCabe, Sybil Anderson. Benefic; 1964.
45. *Communication: From Cave Writing to Television;* Batchelor, J. F. Harcourt; N. Y., 1953.
46. *Ways We Travel;* Carpenter, Frances. American; N. Y., 1929.
47. *Communication;* Jupo, Frank. Prentice-Hall, N. Y., 1957.
48. *How Printing Helps Us;* McCabe, Sybil Anderson. 1964.
49. *Our Post Office and It's Helpers;* Miner, O. Irene. Children's Press, 1955.
50. *Mr. Mailman;* Barr, Jane, Whitman; Chicago, 1954.
51. *Let's Go To A Post Office;* Bucheimer, Putnam, N. Y., 1957.
52. *How We Get Our Mail;* McCall, Edith S., Benefic; Chicago, 1961.
53. *Your Breakfast and the People Who Made It;* Gruenberg, B. C. and Adelson, L. Doubleday, N. Y., 1954.
54. *Bread from Seed to Loaf;* (picture book)
55. *The Story Book of Foods from the Field; Wheat, Corn, Rice, Sugar;* Petersham, M. and Miska. Winston, N. Y., 1956.
56. *Frozen Food From Field to Freezer;* Smith, Mary Elizabeth. Schribner N. Y., 1958.
57. *How We Get Our Shelter;* Provus, Malcolm. Benefic, Chicago, 1957.
58. *Who Makes Our Homes;* McIntire and Hill, W. Follett, Chicago, 1957.
59. *This is the Way We Build a House;* Creighton, Pete. Holt; N. Y., 1940.
60. *Let's Find Out About Houses;* Shorp, Martha and Charles., 1962.
61. *Dairyman Don;* Chapin, Cynthia. Whitman, Chicago, 1964.
62. *How Foods are Preserved;* Banks, Marjorie. Benefic; Chicago, 1963.
63. *At The Bakery;* Xoloniua, Lillian and Schroeder, Glen.
64. *How We Travel on Land;* Provus, Malcolm. Benefic; Chicago, 1962.
65. *How We Travel on Water;* Provus, Malcolm, 1962.
66. *Big City Transportation;* Grell, Catherine, Follett; Chicago, 1954.
67. *Planes, Trains, Cars, and Boats;* Kalish, Lionel and Muriel. Golden; N. Y., 1963.
68. *I Want to be a Coal Miner;* Greene, Carla. Children's Press. 1957.
69. *I Want to be a Homemaker;* Greene, Carla, Children's Press. 1961.

70. *I Want to be a Carpenter;* Greene, Carla. 1959.
71. *I Want to be a Road Builder;* Greene, Carla. 1958.
72. *I Want to be a Storekeeper;* Greene, Carla. 1958.
73. *I Want to be a Truck Driver;* Green, Carla. 1958.
74. *I Want to be a Diary Farmer;* Greene, Carla. 1959.
75. *I Want to be a Banker;* Greene, Carla. 1956.
76. *Daddies; What They Do;* Walker, Helen, Lothrop, Lee and Shepard; N. Y., 1946.
77. *Work Around the World;* Jackson, K. Silver Burdett.
78. *I Want to be a Fireman;* Wilde, George. Children's Press. 1957.
79. *About Father's Who Work;* Shaw, Ruth. Children's Press, 1958.

B. COMMUNITY RESOURCES

1. Mr. Edward Ullum, Postmaster of Lebanon.
2. Mr. Fred Maynor, Mayor of Springboro. (city government)
3. Mr. Donald Sidebottom, Branch of First National Bank. (banking)
4. Mr. Corwin Nixon, State Representative from our district. (politics)
5. Mr. Marion Snider, Local News Announcer W.P.F.B. (communications)
6. Mr. Earl Manifold, Fire Dept. (fire safety)
7. Mr. Everitt Manning, Police Dept.
8. State Highway Patrol Post. (ask for desk sergeant) slides, talk, films.
9. Mrs. Brenda Muslin, school nurse. (health)
10. Mr. Bill Gordon, Principal. (social studies, history of Ohio/community.
11. Mr. Don Glinerich, Director of Parks for Warren Co. (all areas of recreation).
12. Mr. Hewett Mulford, Mulford's & Co. (soil and growing flowers).
13. Mr. Fred Hergert, Cincinnati Gas & Electric Co. (progress in science)
14. Dr. Gunther, Gunther's Animal Hospital (care of animals and pets)
15. Mrs. Hazel Phillips, Director of Museum (history of county).
16. Mr. William Poppe, State Employment Office, (job opportunities and changes)
17. Richard Chambers, Advertising Director of the Western Star.
18. Mr. Berman Ross, 4-H Agent
19. Mr. Tom Haines, Conservation Agent

C. AUDIO VISUAL MATERIALS

Films

Everyone Helps In a Community - Churchill Films, Los Angeles, Calif.

Farm Animals - Encyclopedia Britannica, Inc.

Let's Be Good Citizens in Our Neighborhood - Gateway Publications, San Francisco, Calif.

George's New Suit - Warren County Film Library.

Communication for Beginners - Warren County Film Library.

Where Do Our Letters Go - Warren County Film Library

We Learn About the Telephone - Bell Telephone Co., Middletown, O.

Our Part in Conservation - Warren County Film Library

How Animals Help Us - Warren County Film Library

How Birds Help Us - Warren County Film Library

How Insects Help Us - Warren County Film Library

Where Does Our Food Come From - Warren County Film Library

Discovering the Library - Society for Visual Education, Chicago, Ill.

Fire Department - Society for Visual Education, Chicago, Ill.
City Fire Fighters - Society for Visual Education, Chicago, Ill.
Fire and Police Service - Society for Visual Education, Chicago, Ill.
Helpers Who Come to Our House - Warren County Film Library
How Machines and Tools Help Us - Warren County Film Library
Understanding Fire - Warren County Film Library
Community Hospital - 11 min. Color - Sutherland Education Films, Los Angeles, Calif.
The Mailman - Encyclopedia Britannica Films, Willmette, Ill.
Helpers In Our Community - Warren County Film Library
Your Friend the Doctor - Warren County Film Library
Machines Do Work - Warren County Film Library
What Our Town Does for Us - Warren County Film Library
Lunchroom Earners - Warren County Film Library
Primary Safety On the School Playground - Warren County Film Library
The New House: Where It Comes From - Warren County Film Library
An Airplane Trip - Warren County Film Library
The City - Warren County Film Library
Johnny Visits the City - Warren County Film Library

Filmstrips:
Life On a Small Farm - No. 401815 - McGraw-Hill Film Co.
Life On a Large Ranch - No. 401815 - McGraw-Hill Film Co.
A Ride in the Country - Society For Visual Education, Inc., Chicago, Ill.
Acceptance of Difference - Society For Visual Education, Inc., Chicago, Ill.
Consideration for Others - Society For Visual Education, Inc., Chicago, Ill.
Learning How to be Liked - Society For Visual Education, Inc., Chicago, Ill.
Recognition of Responsibilities - Society For Visual Education, Inc., Chicago, Ill.
Working Together in the Family - Society For Visual Education, Inc., Chicago, Ill.
Living In a Town - Jam Handy
A Family Shopping Trip - S. V. E.
Our Postoffice - S. V. E.
Shopping for Groceries - Jam Handy - 18 Frames
Service Station Attendant - McGraw-Hill Film Co. - 40 Frames
The Fireman - McGraw-Hill Film Co.
A Visit to the Dentist - Jam Handy - 27 Frames
The Dentist - McGraw-Hill Film Co. - 40 Frames
The Grocer - Jam Handy - 27 Frames
The Policeman - Jam Handy - 27 Frames
People Whose Work Is Important to Us - Handbook of Educational Filmstrips
Visit to a Shopping Center - McGraw-Hill Film Co. - No. 259120
Set I - No. 402000 - Community Helpers Series - Co. Library
Set II - No. 402060
a. The Dentist
b. The Librarian
c. The Milkman
d. Sanitation Dept. Crew
e. Service Station Attendant
f. The Street Maintenance Crew
Health - Society for Visual Education, Chicago, Ill.
Policemen and Firemen - S. V. E.
School Helpers - No. 401985
Schools - S. V. E.
Why We Need Houses - No. 8122 - Encyclopedia Britannica Films, Inc.
Tools and Materials for Building Houses - No. 8124 - Encyclopedia Britannica Films, Inc.
Men Who Build Our Houses - No. 8126 - Encyclopedia Britannica Films, Inc.

Transportation - The Free Book Filmstrips Children's Press (S.V.E.)

Foundation For Occupational Planning - Science Research Association, Inc. Chicago, Ill.

Occupational Education - Eye Gate Filmstrips, Jamaica, N. Y.

a. The Gas Station Attendant
b. The Waitress
c. The Variety Store
d. The Nurses Aid
e. The School Cafeteria

VI. EVALUATION SUGGESTIONS

A. TESTS

1. Use a mimeographed matching test. Draw pictures of the school helpers.
   Nurse
   Secretary
   Principal
   Librarian
   Cafeteria Worker
   Custodian
   Bus Driver
   Phy. Ed. Teacher
   Have children match their picture with their office or room.
2. Draw pictures of various buildings in the community: Stores, schools, fire dept., and have the class match words with these pictures.
3. Name some helpers.
4. What are some of the services performed in your community?
5. Questions about some of our field trips.
6. Below is a list of words and their meaning. Write the number of each word on the line before it's meaning.
   1) City
   2) State Park
   3) Community
   4) Neighborhood
   5) Town
   6) Farming Community
   ____Any place where people live and work together.
   ____A very big community.
   ____A smaller community.
   ____A place where there are many farms.
   ____Land with grass and trees that is put aside by the state for all the people to visit.
   ____A small part of a city or town.
7. Draw a line under the best answer. (using questions and answers pertinent to the unit.)

B. OBSERVATION TECHNIQUES

1. Check objectives to determine if they were covered sufficiently.
2. Is there improvement in skills?
3. Study children's responses. Are they interested and eager to learn?
4. Have they developed improved behavior patterns of cooperativeness and responsibleness?
5. Do children have more respect for what other people do for them?
6. Did all of the children participate and contribute something?
7. Have they improved in critical and creative thinking and problem solving techniques?
8. Charts and Checklists. These are valuable in evaluating many aspects of social learning, and can be used by the children for self-evaluation.
9. Individual and group diaries or logs. Pictorial logs would probably be used in this unit since writing, spelling, and composition skills are not well developed.
10. Simple andotal records are helpful in recording specific instances of behavior.
11. Let the class make a bulletin board depiciting ways to take care of things at school, home, and in the community.
12. Day-to-day observation of children's growth.
13. Group discussion is especially effective in appraising growth in the social studies.

Appendix VII

A RESOURCE UNIT ON VOCATIONS RELATED TO THE TOPIC OF POLLUTION

By Tom Hehmeyer
Miami University
Oxford, Ohio
School of Education Project S.T.A.V.E.
Dr. N. P. Georgiady, Director

I. SIGNIFICANCE OF THE TOPIC.

A. Affects the lives of everyone of us. (Contemporary and future problem)
B. Air pollution a greater problem now than in the past.
C. Water pollution a greater problem now than in the past.
D. Pollution is a problem for all ages.
E. Noise pollution a greater problem now than in the past.
F. Pollution, if it is to be solved, must have the cooperation and understanding of all ages.
G. Various agencies and occupations related to this topic.

II. OBJECTIVES:

A. To investigate the different occupations and vocations related to studying and solving the problem of pollution.
B. To study the educational requirements needed for the various vocations.
C. To learn the various skills needed for related occupations and vocations.
D. To develop a greater awareness of the pollution problem and agencies involved.

III. OCCUPATIONS:

(This list has been compiled as a teacher aid only. It is not intended for mastery by the students.)

Agronomist - (Crop - research scientist; crop scientist). Conducts experiments or investigations in field crop problems and develops new methods of growing crops to secure more efficient production, higher yield, and improve quality.

Forest Ecologist - Conducts research in environmental factors affecting forests. Investigates adaptability of different species to new environmental conditions, such as changes in soil type, climate, and altitude.

Forest Ranger - Manages and develops forest lands and their resources for economic and recreational purposes. Assists in planning and carrying out projects for control of floods, soil erosion, tree diseases, and insect pests in forests. Advises on forestry problems and conducts educational programs on care of forests.

Horticulturist - Conducts experiments and investigations on problems of breeding, production, storage, processing, and transit of fruits, nuts, berries, vegetables, flowers, bushes, and trees. Experiments to develop new or improved varieties having resistance to disease or adaptability to climates, soils, uses, or processes.

Soil Conservationist - Plans and develops coordinated practices for soil-erosion control, moisture conservation, and sound land use. Plans soil management practices, such as crop rotation, strip cropping, contour plowing, and reforestation as related to soil and water conservation.

Soil Scientist - Studies soil characteristics, identifies and maps soil types, and investigates responses of soils to known management practices to determine use capabilities of soils and effects of alternative practices on soil productivity.

Biochemist - Studies chemical processes of living organisms. Conducts research to determine action of foods, drugs, hormones, and other substances on tissues and vital processes of living organisms.

Biologist - Studies origin, relationship, development, anatomy, functions, and other basic principles of plant and animal life.

Aquatic Biologist - (Same as aquatic ecologist) Studies plant and animals living in water and environmental conditions affecting them. Investigates water temperature, acidity, light, oxygen content, and other physical conditions to determine their relationship to aquatic life.

Marine Biologist - Specializes in study of salt water aquatic life.

Limnologist - Specializes in study of fresh water aquatic life.

Botanist - Studies development, physiology, heredity, environment, distribution, structure, and economic value of plants for application in such fields as agronomy, foresty, horticulture and medicine. Examines effect of environmental factors, such as rainfall, temperature, climate and soil on plant growth.

Plant Ecologist - Studies effect on distribution and type of plant growth of environmental elements, such as rainfall, temperature, sunlight, soil, elevations, and diseases.

Zoologist - Studies origin, interrelationships, classification, life histories, habits, life processes, diseases, relation to environment, growth and development, genetics, and distribution of all types of animals.

Animal Ecologists - Studies effects of environment on distribution, physical characteristics, behavior, and life history of animals. Examines factors, such as plant growth, rainfall, temperature, altitude, and sunlight, in relation to animal life.

Civil Engineer - Performs a variety of engineering work in planning, designing, and overseeing construction and maintenance of structures and facilities, such as roads, railroads, airports, bridges, harbors,

dams, pipelines, powerplants, water and sewage systems, and waste disposal units.

Public Health Engineer - Designs and oversees construction and operation of hygienic projects, such as water-works, sewage, garbage, and trash disposal plants, drainage systems, and insect and rodent control projects. Advises industrial plants in disposal of obnoxious gases, oils, greases, and other chemicals.

OTHER RELATED OCCUPATIONS INCLUDE:

Cytologist
Biophysicist
Entomologist
Apiculturist
Geneticist
Microbiologist
Bacteriologist
Virologist
Soil Bacteriologist
Mycologist
Parasitologist
Pharmacologist
Physiologist
Plant Nematologist
Plant Pathologist
Pisciculturist
And Many Many More!

IV. INVENTORY OF POSSIBLE ACTIVITIES

A. Students to make bulletin boards depicting various types of pollution and related occupations, vocations concerned with solution of problem.
B. Invite community people to speak to the class.
C. Write letters to various agencies seeking information on related occupations.
D. Fieldtrips to Miami Conservancy District, Cox Municipal Airport (Weather Bureau) and the Aullwood Audubon Center.
E. Field trip to the Montgomery County Incinerator in Northridge.
F. Students to write own book concerning occupation seen or researched related to topic of pollution.
G. Filmstrips, slides, film loops, records, films, books, and pamphlets to be utalized.
H. Students to write own play concerning pollution and related vocations. (Group Work)
I. Role Play - Students to pretend, they are newspaper reporters and interview a person in related occupation.
J. Students might give oral presentation of their interviews.
K. Students might keep a scrapbook of pictures, clipping, drawings, stories, articles, etc.
L. Add to vocabulary by starting own dictionary, showing new vocabulary items, acquired during the study of the unit.

V. RESOURCES:

A. Agencies:

Aullwood Audubon Center
Nature Center
1000 Aullwood
Dayton, Ohio 45414

The Miami Conservancy District
38 East Monument
Dayton, Ohio 45402

Montgomery County Health Department
45 East Monument
Dayton, Ohio 45402

Cox Municipal Airport
State Route 440
Vandalia, Ohio 45377

Metropolitan Life Insurance Company
One Madison Avenue
New York, New York 10010

U.S. Department of Interior
Federal Water Pollution Control Administration
633 Indiana Avenue, Northwest
Washington, D.C. 20242

Department of National Health and Welfare
Occupational Health Division
Ottawa, Canada

National Center for Air Pollution Control
U.S. Public Health Service
Washington, D.C. 20201

World Health Organization
Palais des Nations
Geneva, Switzerland

Bureau of Outdoor Recreation
Department of the Interior
Washington, D.C. 20240

The Conservation Foundation
1250 Connecticut Avenue N.W.
Washington, D.C. 20036

B. General Bibliography

Books

The Conservation Story, American Educational Publications, Education Center, Columbus, Ohio 43216
Price 35c

Our Polluted World, American Educational Publications, Educational Center, Columbus, Ohio 43216
Price 35c

Let's Go to Stop Air Pollution, E.M. Hale and Company Publishers, 1201 South Hastings Way, Eau Claire, Wisconsin 54701 Price $2.29

The Air We Live In, G. P. Putnam's Sons Coward - McCann Inc., 200 Madison Avenue, New York, New York 10016
Price $3.64

Our Noisy World, Doubleday and Company, Inc., 501 Franklin Avenue, Garden City, New York 11531 Price $4.50

Our Noisy World: The Problem of Noisy Pollution, Doubleday and Company, Inc., 501 Franklin Avenue, Garden City, New York 11531 Price $4.50

Let's Go to Stop Water Pollution, E.M. Hale and Company Publishers, 1201 South Hastings Way, Eau Claire, Wisconsin 54701 Price $2.29

Air and Water Pollution, Lyons and Carnaham - Educational Publishers, 407 East 25th Street, Chicago, Illinois 60616
Price 48c

Water: The Vital Essence, Harper and Row, Publishers, School Department, 2500 Crawford Avenue, Evanston, Illinois 60201 Price $5.23

The Fishes, (Young Readers Edition), Silver Burdett Company, Box 362, Morristown, New Jersey 07960
Price $4.95

Films

"Pollution" 16 mm (Color), Serina Press, 70 Kennedy Street, Alexandria, Virginia 22305
Price - Loan

"A Day at the Dump" 16 mm (Color), Serina Press, 70 Kennedy Street, Alexandria, Virginia 22305
Price - Loan

"Water, Friend or Enemy" 16 mm (Color), Walt Disney 16 mm Films, 800 Sonora Avenue, Glendale, California 91201
Price $80.00

"Your Friend the Water (Clean or Dirty)" 16 mm (Color), Encyclopedia Britannica, Educational Corporation, 425 North Michigan Avenue, Chicago, Illinois 60611
Price $65.00

"Air, Water, and Industry", 16 mm, (Color), Dow Chemical Company, Film Library, Audio-Visual, 2030 Abbott Road Center, Midland, Michigan 48640
Price - Loan

Filmstrips

"Air Pollution and You" (Color), Key Productions, Inc., 527 Madison Avenue, New York, New York 10022
Price $7.50

"Water", (Color), 40 frames, Filmstrip House, Inc., 432 Park Avenue South, New York, New York 10016
Price $6.00

"Protecting Fresh Water Game Fish", Visual Education Consultants, Inc., 2066 Helena Street, Box 52, Madison, Wisconsin 53701
Price $4.00

"Survival in a Polluted Environment", 40 frames, Key Productions, Inc., 527 Madison Avenue, New York, New York 10022
Price $4.00

Sound Filmstrips

"Our Water and Air", (Color) 49 frames, Coronet Films, 65 East South Water Street, Chicago, Illinois 60601
Price $10.00

"Water Conservation Today", (Color), 39 frames, Society for Visual Education, Inc., 1345 Diversey Parkway, Chicago, Illinois 60614
Price $9.00

Filmstrip and Transparency

"Squandered Resources", (Color), 45 frames, The New York Times, Times Square, New York, New York 10036
Price $10.00

Transparencies

"Effect of Air Pollution on Our Lives", (Color), Creative Visuals, Box 1911, Big Spring, Texas 79720
Price $6.50

"Sources of Air Pollution" (Color), Creative Visuals, Box 1911, Big Spring, Texas 79720
Price $6.50

Equipment

Movie Projector
Slide Projector
Tape recorder
Bulletin board
Overhead projector
Filmstrip projector
Film Screen
Record Player
Kodak Camera

Materials

Pictures of workers in various vocations
Records
Scrapbooks
Films
Camera Film
Filmstrips
Poster Board
Bulletin Board Paper
Stationery and Envelopes
Paste
Stapler and Staples
Stamps

VI. EVALUATIVE SUGGESTIONS:

1. Were the objectives obtained? (Paper & pencil exercise, group discussion)

2. Did the students enjoy the unit? (Group discussion, essay, oral report, etc.)

3. Were there enough chances for students to plan work associated with this unit? (Opinionnaire or questionnaire)

4. Was this unit the right length to hold the students' interest? (Group discussion, paper - pencil exercise, questionnaire)

5. Could the students associate various occupations with pollution? (Observation, paper - pencil, questionnaire, etc.)

6. Did the students recognize everyday signs of pollution and ways they could help solve the problem? (Observation)

Appendix VIII

OCEANOGRAPHY

Miami University Oxford, Ohio
School of Education Project S.T.A.V.E.
Dr. N.P. Georgiady, Director

I. INTRODUCTION

An exciting rival of the outer space program is the probing into the mysteries of the innermost depths of the sea. This last of the earth's frontiers offers a tremendous challenge to man. It offers, too, a multitude of careers, many still in their infancy due to the lack of trained men and women. Through an early exposure of elementary children to the field of oceanography, many may be encouraged to pursue some facet of it later as their lives work.

II. GENERAL GOALS

A. To understand oceanography encompasses many sciences; political, social, natural, and physical
B. To become aware that marine science overflows into many other scientific discoveries and inventions
C. To understand how oceanography plays a major role in related on-shore industries, occupations, and businesses
D. To acquaint children with career opportunities related to oceanography now and in the projected future
E. To develop a respect for and an appreciation of the vastness, beauty and fascination of the ocean through art, music, and literature
F. To understand the magnitude of importance the ocean has had on mankind, in the past, has now, and will have in the future

III. UNDERSTANDINGS

A. The ocean is about 4-1/2 billion years old
B. Only the last hundred million years has the ocean been alive with plants and animals
C. About 363,396 quadrillion gallons of water make up the ocean
D. Important and precious minerals are found in the sea
E. Marine medicine shows a promising future, especially in the area of antibiotics
F. Many valuable minerals are washed into the ocean from rocks and soil
G. Farming at sea is becoming more efficient and extensive
H. The ocean floor still remains a great mystery
I. The bathyscaphe is still the foremost diving vessel
J. Ocean water can be purified to produce fresh water
K. Undersea apartments and sealabs are being placed down on the edge of the continental shelf.
L. There are more than a hundred submersible vehicles.
M. The ocean is a source of power.
N. The ocean is an important avenue of transportation.
O. The ocean floor is irregular with mountains, valleys, and active volcanoes.

P. The ocean is in a constant motion through the phenomena of tides, waves, and currents.

Q. The ocean is an outstanding factor influencing the weather.

R. The temperature of the ocean varies from the sea ice area to the tropical area.

S. Scientists use special tools and equipment to explore the ocean depths.

T. The diver must overcome the pressure of both air and water when he drops into the ocean depths.

U. Major industries exist on land because of ocean resources.

V. Tiny plant and animals of the ocean are known as plankton.

W. Plankton are important links in the food chain of the ocean.

X. Plankton may in the future be utilized as food for man.

IV. ATTITUDES

A. To develop a continuing curiosity about and interest in the ocean.

B. To develop a better understanding of the world of work as it is related to the ocean.

C. To develop an awareness of the interdependence between the land and ocean.

D. To develop an appreciation for the need of various services and occupations related to the ocean.

E. To develop a good feeling for the beauty and fascination of the ocean.

F. To develop an ever inquisitive attitude about the life that exists in the ocean.

V. SKILLS

A. To develop the ability to read and interpret simple nautical charts, symbols, and abbreviations, locating places on an outline map, interpreting nautical facts in fiction and ocean stories, reading science and other related books and using such clues as table of contents, index, glossary, charts, graphs and illustrations.

B. To develop the ability to select material to read, organize and evaluate information, present information in written and oral form, read for enjoyment, listen to classmates, teacher, and resource people attentively, dramatize situations, write letters, and use increased vocabulary.

C. To develop the ability to locate, identify, classify, relate, and compare various occupations and careers

D. To develop the ability to make plans as a group and in committees, make decisions on what to do and how to do it, and complete activities and research successfully.

VI. SUGGESTED PROBLEMS

A. Why must oceanographers be well informed in many areas of science?

B. What was the Mohole Project?

C. What was William Beebe's contribution to oceanography?

D. What are some of the recently invented manned research submersibles?

E. What are FLIP, SPAR, AND POP? Why are they so unique?

F. How do things necessary to sustain life under the sea compare with those necessary to sustain life in space, on land?

G. Why is ocean conservation important and how can it be accomplished?

H. What future use can be made of sea mammals?

I. What are some of the problems of underwater exploration?

J. How and what kind of minerals get into the ocean?

K. Why are scientists eager to discover an easy and economical way to remove salt from the ocean water?

L. Of what good are plankton and what future use can be seen for them?

M. How do fish obtain oxygen?

N. How does geography deal with the study of the ocean?
O. Who is Jacques Cousteau?
P. Why is Jacque Piccard important in the study of the ocean?
Q. What are some critical problems that must be solved in order for undersea habitat?

VII. VOCATION STUDY

A. What does the worker do?
B. What U.S. Census Data is available concerning it?
C. What is the outlook for the occupations?
D. Is licensing and certification necessary?
E. What is the geographical location of the work?
F. What are the working conditions?
G. What is the pay and chances of promotion?
H. What are the requirements for the job?
I. What preparation is necessary for the job?
J. How is the employment found?
K. What are some of the related occupations?

VIII. VOCATIONS

A. Physicist
B. Meteorologist
C. Geophysicist
D. Chemist
E. Engineer
F. Geologist
G. Biologist
H. Mathematician
I. Marine Biologist
J. Zoologist
K. Embryologist
L. Astronomer
M. Communication Personnel
N. Supply Personnel
O. Electronic Technician
P. Marine Botanist
Q. Photographer
R. Marine Medics
S. Naval Architect
T. Divers
U. Sailor
V. Coast Guard
W. Fire Boat Firemen
X. Ecologist
Y. Oil Worker
Z. Radar Technician
AA. Seismologist
BB. Metallurgist
CC. Engine Mechanic
DD. Plant Pathologist
EE. Animal Pathologist
FF. Ship Pilot
GG. Ship Rigger
HH. Airplane Pilot
II. Whaler
JJ. Fishermen and Oystermen
KK. Longshoremen and Stevedore
LL. Ship Building, Boat Building and Repairmen
MM. Fish Canner

IX. APPROACH ACTIVITIES

A. View film related to oceanography such as LAND BENEATH THE SEA; MISSION OCEANOGRAPHY: SCIENTIST IN THE SEA
B. Display appropriate books, magazines, newspaper articles
C. Display an attractive bulletin board showing the various forms of marine life found in the ocean
D. Invite a local skin diver to show equipment
E. Introduce a motivating question such as"Do you think there are sea creatures unknown to man"?
F. Display sea works of art
G. Display charts of ocean workers of various occupations
H. Play a recording of Sea music such as Sunken Cathedral; Sadko; Pirates of Penzance
I. Invite a naval serviceman to talk to the class

J. Display sea shells and encourage children to contribute to the collection

K. Read sea poems such as Sea-Fever, by John Mansfield - discuss and get the reaction from the class

L. View and discuss appropriate filmstrips or slides

M. Begin novel with ocean theme such as Misty, by Marguerite Henry, children can finish on their own

N. Have children tell their experiences and feelings about the ocean.

O. Make a chart to show the various submersibles with workers at different tasks.

X. DEVELOPMENTAL ACTIVITIES

A. Locate the oceans. Discuss relative size, depths, distances between major seaports, trade routes. Discuss the commercial and occupational interests that man has in the ocean.

B. Read accounts of explorations by early oceanographers such as Edward Forbes, Matthew Maury, C. Wyville Thompson, Alexander Agassiz, and Fridtj of Nansen.

C. Have a study project on ocean currents, their causes, how they distribute heat to high latitudes, their role in the distribution of nutrients, their significance during early sailing days, and location of major currents.

D. List the needs of a city of 100,000 people and locate cities of that size. Discuss what is meant by the population explosion and name some of the basic factors behind it. What might be some solutions to this problem? Discuss the problems of crowded seaport and river cities in Latin America, the Middle East, and the Orient.

E. Make a study of tides, locating major hightide areas in the world, and discussing the cause of low and high tides. Bring in influence of centrifugal force and lunar attraction on tides.

F. Discuss the food pyramid and the cycle of life in the sea which is necessary to explain the importance of man's learning to harvest plankton. The food chain operates at a ratio of 10 to 1.

G. Try the artificial propagation of freshwater algae.

H. Discuss ways by which the worldwide fish harvest may be improved.

I. Encourage children to research more about Mohole Project, Cuss I, and Glomar Challenger

J. Encourage students to research vocations which appeal to them and chart points suggested under item VII VOCATION STUDY.

K. Allow students to demonstrate working of a diving bell by placing an inverted glass in a pan of water. Use some small figure to simulate occupant.

L. Encourage research on sea mammals, how they are alike and how they differ.

M. Make an aquarium.

N. Study animals of the sea and discover how they get their food and how they protect themselves.

O. Discover how the water spider makes his own bell.

P. Discover why the diving bell was limited and man had to have a better way to explore the sea.

Q. Discuss buoyancy of a cork afloat in water. Push thumb tacks into cork until it loses its buoyancy.

R. Do the same experiment as in the above item but use salt water; discuss findings.

S. Research the bathyscape TRIESTE; compare to a land tractor.

T. Develop a chart of manned research submersibles, listing their names, crews, maximum depths in feet, speed, payloads, and number of hours they can remain underwater.

U. Start a scrapbook of clippings about new submersibles.

V. Make models of ships and submersibles.
W. Gather information about the research vessels FLIP, SPAR, and POP.
X. Let children construct their own solar distillation plant by putting in the sun a pan of salty water covered by a plastic dome. Have them develop a way in which fresh water on the plastic dome will fall into collection container.
Y. Boil salt water in a kettle and collect steam. Compare with above experiment.
Z. Make models of various workers and dress them in appropriate work clothing.
AA. Keep a word file of new vocabulary words related to ocean.
BB. Hold class panel discussion using provocative questions.
CC. Have students consult an encyclopedia for a list of minerals in our bodies. They can then check foods for the minerals they contain.
DD. Discuss possible substitutes for minerals which are being depleted.
EE. Collect new articles discussing progress in mineral reclamation from the sea.
FF. Locate what scientists consider to be the potential mineral sites under the sea.
GG. Allow students to design and equip their own undersea vehicles, and borrow features of one to add to another.
HH. Draw self-portrait in the role of some sea occupation.
II. Write want ads for the newspaper describing various job opening related to sea occupations.
JJ. Have the class do research to see why most sea bottom structures are spherical. Why not some other shape?
KK. Compare fireboat workers with land firemen.
LL. Make relief map showing irregularity of the ocean floor.
MM. Write a creative story about workers at sea.
NN. Write a skit dramatizing selected occupations of the sea.
OO. Research and identify sea and shore birds.

XI CULMINATING ACTIVITIES

Culminating activities will be determined by those developmental activities, item X which have selected, developed and presented by students.

XII. EVALUATION

A. Informal testing
B. Formal written tests
C. Observation
D. Successful completion of projects
E. Oral discussions and reporting
F. Change in behavior

1. The student should understand oceanography encompasses many sciences.
2. The student should become aware that marine science overflows into many other scientific discoveries and inventions.
3. The student should understand how oceanography plays a major role in related on-shore industries, occupations, and businesses.
4. The student should become more knowledgeable of career opportunities related to oceanography.
5. The student should develop a respect for and an appreciation of the vastness, beauty and fascination of the ocean through art, music and literature.
6. The student should understand the magnitude of importance the ocean has on mankind.

XIII. MATERIALS AND RESOURCES

A. Books

WOMETCO Miami Seaquarium, Miami Florida
Carlisle, Norman, *Riches of the Sea*, Sterling, 1967
Carson, Rachel L., *The Sea Around Us*, Oxford, 1961

Clarke, Arthur C., *Challenge of the Sea*, Holt, 1960
Coker, Robert, *This Great and Wide Sea*, Harper, 1968
Cowen, Richard C., *Frontiers of the Sea*, Doubleday, 1960
Daniels, Hawthorne, and Minot, Francis, *The Inexhaustible Sea*, Colliers, 1961
Dugan, James, *Man Under the Sea*, Collier's 1956
Gaskell, Thomas, F., *World Beneath the Oceans*, Natural History Press, 1965
Kellogg, Winthrop, Porpoises and Sonar, U. of Chicago Press, 1961
MacLean, Donald A., *The Sea: A New Frontier*, Franklin Publication, Arcadia, California
Naval Oceanographic Distribution Office, Clearfield, Utah
Reader's Guide to Oceanography, Woods Hole Oceanographic Istitute, Woods Hole, Mass.
Zabel, Morton D., *The Portable Conrad*, Viking, 1947
Williamson, W. M., *The Eternal Sea, An Anthology of Sea Poems*, Coward-McCann, New York, 1946
Melville, Herman, *Moby Dick*
Forester, C.S., *Captain Horatio Hornblower*, Little, Brown, and Company, 1939
Water, Life Science Library, Time-Life Books, New York, 1969
Heyerdahl, Thor, *Kon-Tiki*, Rank McNally & Company, 1950
Roberts, Elliott, *Deep Sea, High Mountain*, Little, Brown and Company, 1961
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Life in the Early Seas: Invertebrates and Fishes color McG-H

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The Ocean of Air, Color, UEVA

Ocean Tides, Color or B/W EBEC

Oceanography - The Study of the Oceans, Color, JF

Oceanography: A Voyage to Discovery, Color, UEVA

Out of the Cradle, GC

The Riddle of the Sea, B/W., TFC

Rythms of the Universe, Color GC

Science of the Sea, Color, GC

Tides of the Ocean, Color, IFB

We Explore Ocean Life, B/W, B-FA

What's Under the Ocean, Color or B/W, B-FA

C. Filmstrip

The Oceans, Color, EGH

Ocean Currents and Atmospheric Currents, Color EGH

Oceans of Air and Water, Color, EGH

Oceanography -1- Exploring a Deep Frontier and *Oceanography -2- Resources of the Sea*, color EA

Oceanography; Understanding Our Deep Frontier, Color EBEC

Understanding Oceanography, Color, SVE

D. Multimedia

Bathymetric Map, HSC% HM

Danny Dunn on the Ocean Floor, book by Williams and Abrashkin with music on Golden Records, McG-H

Hydrographic Relief Globe, HSC?HM

Man on the Moon: A Multimedia Archive, films, strips, records, tape cassette, book, NYT

Oceanography, color transparency, MPC

Sea Life Collection, specimens, color charts, HSC/HM

Science of the Sea Kit (Mixed Media) B-FA

E. Sea Art

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Hokusai, *Waves*

Turner, Joseph M. W., *The Snowstorm*

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Bradbury, Bianca, *Nor'easter*
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Frost, Frances, *Sea Town*

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Mendelssohn, *Calm Sea and Prosperous Voyage*
Ibert, *Escales*
Mendelssohn, *Fingal's Cave Overture*
Wagner, *Flying Dutchman*
Debussy, *La Mer*
Britten, *Peter Grimes: Four Sea Interludes*
Rimski-Korsakov, *Scheherazade*
Debussy, *Reflets dans l'Eau*
Debussy, *The Sunken Cathedral*
Rimski-Korsakov, *Sadko*
Gilbert and Sullivan, H.M.S. Pinafore
Gilbert and Sullivan, *Pirates of Penzance*
Handel, *Water Music*
Sea Chanties
Sibelius, *Oceanides, Opus 73*

PRODUCERS' ADDRESSES FOR FILM, FILMSTRIP AND MULTIMEDIA

AF: Academy Films
748 N. Seward St.
Hollywood, California 90038

B-FA: Bailey-Film Associates
11559 Santa Monica Blvd.
Los Angeles, California 90025

CIF: Cornet Instructional Films
65 E. South Water Street
Chicago, Illinois 60601

EA: Educational Activities, Inc.
P. O. Box 392
Freeport, New York 11520

EBEC: Encyclopedia Britannica Educational Corp.
425 N. Michigan Avenue
Chicago, Illinois 60611

EGH: Eye Gate House
146-01 Archer Avenue
Jamaica, New York 11435

FH: Filmstrip House
432 Park Avenue South
New York City, NY 10016

HSC/HM: Hubbard Scientific Company Houghton Mifflin Co.
110 Tremont Street
Boston, Massachusetts 02107

IFB: International Film Bureau
332 S. Michigan Avenue
Chicago, Illinois 60604

JF: Journal Films
909 W. Diversey Pkwy.
Chicago, Illinois 60614

McG-H: McGraw-Hill Films
330 W. 42nd Street
New York, New York 10036

NYT: The New York Times
Times Square
New York, New York 60614

SVE: Society for Visual Education
1345 Diversey Pkwy.
Chicago, Illinois 60614

TFC: Teaching Film Custodians, Inc.
25 W. 43rd Street
New York, New York 10036

UEVA: Universal Education and Visual Arts
221 Park Avenue South
New York, New York 10003

WSP: U.S. Government Printing Office
Division of Public Documents
Washington, D.C. 20402

WC: Warren Schloat Productions
Palmer Lane West
Pleasantville, New York 10570

World Color, Inc.
U.S. Highway 1
Ormond Beach, Florida 32074

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